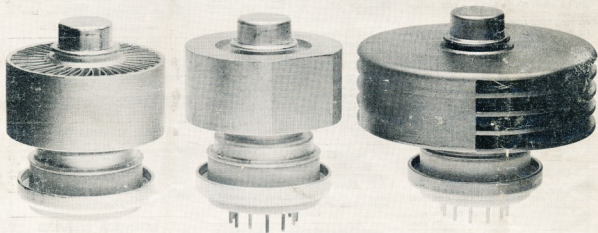


amateur radio

Vol. 39, No. 11
NOVEMBER, 1971

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JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA. FOUNDED 1910



NOVEMBER, 1971

Vol. 39, No. 11

Publishers:

VICTORIAN DIVISION W.I.A.
Reg. Office: 478 Victoria Pde., East Melbourne,
Vic., 3002.

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Mrs. BELLAIRS, Phone 41-3535, 478 Victoria
Parade, East Melbourne, Vic., 3002. Hours:
10 a.m. to 3 p.m. only.

Advertising Representatives:

TECHNICAL NEWS PUBLICATIONS
67 Victoria Parade, Collingwood, Vic., 3066.
Telephone 41-4862.
P.O. Box 191, East Melbourne, Vic., 3002.

Advertisement material should be sent direct
to the printers by the first of each month.

Hamads should be addressed to the Editor.

Printers:

"RICHMOND CHRONICLE," Phone 42-2419.
Shakespeare Street, Richmond, Vic., 3121.



All matters pertaining to "A.R." other than
advertising and subscriptions, should be
addressed to:

THE EDITOR,
"AMATEUR RADIO,"
P.O. BOX 36,
EAST MELBOURNE, VIC., 3002.



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COVER STORY

The Eimac Division of Varian recently released three high-mu triodes
—the 8873, 8874 and 8875. They are compact, external-anode, ceramic-
metal triodes intended for use in zero-bias class B amplifiers in audio or
radio frequency applications. Further details may be obtained from Varian
Pty. Ltd., 82 Christie St., St. Leonards, N.S.W., 2065. (Additional descrip-
tions appeared in "Ham Radio" for January 1971.)

FEDERAL COMMENT:

THE SPACE CONFERENCE—GENEVA 1971

In the long term the World Administrative Radio Conference for Space Telecommunications of the International Telecommunications Union held in Geneva from 7th June to 15th July, 1971, may be found to be one of the most significant events for the Amateur Service in recent years. In the September issue of "Amateur Radio" a report on the proceedings and outcome of the Conference was published. I think it is now appropriate to examine the results of that Conference and, at the same time, to offer some comment on the implications flowing from it so far as they relate to the Amateur Service.

Previously, the Amateur Service has been defined in the I.T.U. Radio Regulations as a "service of self-training intercommunication and technical investigations carried on by Amateurs, that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest". No alteration was made to this definition, but the Conference did adopt the definition of a new service, the "Amateur Satellite Service" in the following terms, "a radio communication service using space stations on earth satellites for the same purposes as those of the amateur service".

At first glance, this definition would appear to be an expression of convenience for use in footnotes. However, the significance of the adoption of this definition is far better than that. Many provisions of the Radio Regulations apply to the "Space Service" which is in turn defined as a "radio communication service". Therefore, as the Amateur Satellite Service is by definition a radio communication service, the doubt that has existed in the past as to the application of these provisions to Amateur Satellites is removed.

In my mind, even more significant than the result of the conference so far as it affected the Amateur Service was the opposition from so many countries to the Amateur Service. It is abundantly clear that the Amateur Service was supported by Australia as well as New Zealand, the United Kingdom, the United States of America, Canada, West Germany and other countries. The issue affecting the Amateur Service that produced so much opposition was the question as to whether or not Amateur

Satellites would be permitted in the Amateur shared bands. The countries that vociferously opposed Amateur Satellites in shared bands included Sweden, Norway, France, Switzerland, Portugal, U.S.S.R., Mexico, Greece, Spain, Netherlands, Italy, India and other countries.

We are fortunate that we enjoy the support of our administration. Comparisons with certain other countries must lead us to the conclusion that the Amateur Service, at least in some of those countries, does not enjoy a similar rapport.

The proposal to permit Amateur Satellites in shared bands had been meticulously investigated and recommended by the C.C.I.R., the I.T.U.'s technical advisory arm.

Of course the W.I.A. was particularly concerned about the 2 metre and 70 centimetre bands—the two bands that it was planned that the A.O.B. translator project would use. Despite some opposition, the principle of the unrestricted use by the Amateur Satellite Service of the exclusive bands, was accepted by the conference. This, of course, covered the frequency band 144-146 MHz., the worldwide two metre allocation.

However, there is no Amateur allocation between 146 MHz. and 24 GHz. that is not a shared band. In the final outcome, use of the segment 435-438 MHz. by the Amateur Satellite Service is permitted, thanks to the excellent lobbying of the I.A.R.U. team which saved the day at the very last minute. For the sake of completeness, it is useful to restate the relevant footnote to that segment:

"320A. In the band 435-438 MHz. the amateur satellite service may be authorised on condition that harmful interference shall not be caused to other services operating in accordance with the table of frequency allocations. Administrations authorising such use shall ensure that any harmful interference caused by emissions from amateur satellites is immediately eliminated."

Even this footnote was the subject of opposition from Indonesia, Singapore and to a lesser extent, Malaysia.

No doubt in a number of cases, the opposition to the use of the shared Amateur bands by the Amateur Satellite Service, can be ascribed to genuine fears of harmful interference, but no doubt there are many other reasons that influenced those countries that opposed the Amateur position. "It Seems To Us" in "QST" of August 1971 puts the matter very clearly: "In the first weeks of the Conference it became apparent that a number of societies in other countries had not done their 'homework' of liaison with authorities."

The fact that at the last Plenary Meeting, the footnote I have quoted above in relation to the segment 435-438 MHz., was inserted into the frequency table, may result, one ventures to suggest, in many administrations giving special scrutiny to the Amateur Service. In addition, other services which failed to achieve anything at all, or at best very little, such as the Maritime Service, which failed totally to secure any frequencies for space communications, may likewise decide to carefully examine the position of the Amateur Service.

In my view, the Amateur Service over the next few years, could face a questioning of its position and perhaps its very existence, by a number of administrations and other services. It is clear that the Amateur Service as a whole must be able to demonstrate the usefulness to which it puts its frequencies. This, in itself is a complete justification for the Wireless Institute of Australia continuing to foster activities such as Project Australis.

Furthermore, the irresponsible use by any Amateur of the frequencies allocated to the Amateur Service cannot be other than detrimental to the whole service in respect of its allocations and privileges. The final results of the Conference may be less than we sought but were the minimum for which we hoped. The result also may be that the Amateur Service will, in the eyes of many, be on trial. Each of us, by our support of those activities that are truly useful, and by the responsible use of our privileges, can ensure that we do not place the future in jeopardy.

MICHAEL J. OWEN.
Federal President, W.I.A.

(Also refer to page 9 of September "A.R." for previous details.—Ed.)

DRAKE 2-B RECEIVER ON TOP BAND*

NOTES ON A SIMPLE MODIFICATION

R. L. GLAISHER, G6LX

The Drake 2-B was first introduced in 1959 and although it has been superseded by later models, in the writer's view it is still one of the best of the post-war Amateur receivers for s.b. and c.w. use. In addition to coverage of the 3.5 to 28 MHz. Amateur bands, it has a built-in facility which permits, with the use of extra crystals, reception on five extra bands each 600 KHz. wide anywhere in the range 3 to 32 MHz. It is this facility which can be used

mer. At first sight it might be thought that the addition of such a large capacity in shunt with the condensers already in circuit would have detrimental effects of the Q of the tuned circuits in the r.f. stage. In practice this was not found to be a problem as the pre-selector can be tuned over the frequency range required and more than sufficient gain is available from the r.f. stage to blanket the noise from the succeeding mixer stages.

are no obvious spurious or second channel signals within the 1.8 to 2.0 MHz. band. It is suggested that a crystal having an exact multiple of 100 KHz. be used as this will provide a direct frequency read-out on the main tuning scale.

PRE-SELECTOR MODIFICATION

It is first necessary to identify the two switch wafers that are associated with the pre-selector input and output circuits and the connections to the wafers that correspond to switch positions "A" and "80". These wafers are the first two looking from the front panel and as wired have a linking lead between the connections for "A" and "80" (see Fig. 2A). The modification consists of removing these leads and wiring in the padding condensers (C1A, CT1A, C2A and CT2A) as shown in Fig. 2B. While there is sufficient room to mount the extra components on short brackets attached to the chassis, this

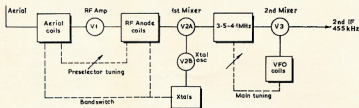


Fig. 1—Block diagram of the Drake 2-B Receiver, showing r.f. and mixer arrangements—see text.

to extend the coverage to include the 160 metre band.

As will be seen by reference to the block diagram (Fig. 1), the receiver is a multiple-conversion superhet, having a basic tuning range of 3.5 to 4.1 MHz. A crystal oscillator and mixer stage is switched into circuit for the Amateur bands 7 to 28 MHz. and for the five extra bands in the spectrum above 4.1 MHz. The grid and anode circuits of the r.f. stage are tuned independently of the main frequency control by the use of a separate pre-selector comprising L/C circuits which resonate at 7 MHz. \pm 2 MHz. Coverage of the other bands and frequencies is obtained by the switching of capacitive or inductive shunts across the pre-selector circuit to raise or lower their inductance.

To receive 160 metres, triple-conversion is used, as on the 7 to 28 MHz. bands. As the pre-selector circuits will only tune down to 3.3 MHz., it is necessary to add capacity so that they will resonate at 1.9 MHz. at mid-scale of the pre-selector tuning. This can be done by using the extra band "A" switch position to bring in capacitive shunts, which in conjunction with a suitable crystal fitted in the "A" socket, will provide the coverage required. By using band "A", the modification has no effect on the performance or the operation of the receiver on the other bands, as the shunts are only in circuit on 160 metres.

A total padding capacity of about 1500 pF. is required across each section of the pre-selector tuned circuits. This capacity is made up from a 0.001 μ F. silver mica condenser in parallel with a 700 pF. compression-type mica trim-

CRYSTAL FREQUENCY

To convert the 1.8 to 2.0 MHz. signal frequency to fall within the range of the tunable i.f. (3.5 to 4.1 MHz.), the crystal oscillator has to operate between 1.7 and 2.1 MHz. for product mixing, or between 5.5 to 5.9 MHz. for difference mixing. At G6LX, a crystal frequency of 5.5 MHz. is used to obtain a coverage of 1.8 to 2.0 MHz. with the receiver tuned 3.7 to 3.5 MHz. Product mixing is not recommended, as apart from the problem of the oscillator being in the band in the 1.8 to 2.0 MHz. segment, there are difficulties with strong second-channel signals and in-band birds. Using difference mixing, there

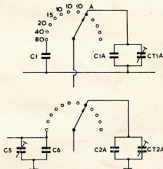


Fig. 2B—The preselector modifications for Top Band in the Drake 2-B. C1A, C2A are 0.001 μ F. silver mica. CT1A, CT2A 700 pF. compression-type trimmers—see text.

was not found to be necessary and the condensers and trimmers are wired directly between the switch contacts and the 80 metre shunts using short lengths of 18 gauge tinned copper wire. If brackets are used, it should be remembered that most types of compression trimmers are constructed so that one side is at earth potential and insulated spacers will be required between the trimmers and the mounting brackets.

ALIGNMENT

Once the pre-selector modifications have been completed and a crystal of the correct frequency inserted into crystal socket "A", the only thing that remains is to adjust the trimmers CT1A and CT2A in order to resonate the pre-selector tuned circuits to 160 metres. This is a very simple adjustment which can be done without the use of a signal generator or other test equipment.

(Continued on Page 9)

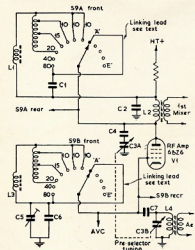


Fig. 2A—Part of the r.f. stage circuit of the Drake 2-B before modification. Component values are as original—see handbook.

* Reprinted from "The Short Wave Magazine," March, 1971.

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GENERAL DESCRIPTION

The Acitron SSB-400 Transceiver consists of the following modules:

- ### 1. Band Switched R.F. Section

This is a large double-sided circuit board housing:

Injection crystal oscillator.

Injection balanced mixer,

R.f. amplifier,

Transmitter balanced mixer. This complete section is readily removable for maintenance purposes.

- ## 2. I.F. Modem

A second relatively large printed circuit board houses:

Receive balanced mixer.

Transmit balanced modulator.

9 MHz. filter and

matching networks.

Two i.f. amplifiers.

A.m. and sideband detector.

- A.g.c. system.

- ### 3. 10-Watt Broad-band Driver

- #### 4. Frequency Cou

- Display.**

5. 6-5 MHz. VFO.
The remaining modules are contained in separate plug-in boards. These are:

- ### 6. 10 Volt Power Regulator,

- ## 7. Audio Amplifier,

- ### 8. 9 MHz. Carrier Oscillator,

- ### 9. Microphone Amp., Vox/Anti-Vox.

- ## 10. Digital Oscillator and Balanced

- Mixer,

11. 100 KHz. Clock Oscillator and Logic Generator

- Logic Generator.**

All circuit boards are plated fibre-glass using gold plated edge connectors, where applicable.

A.L.C.

The a.l.c. system uses the grid current of the final tube to generate a negative voltage which is applied to the first i.f. amplifier. Whilst the main function of the a.l.c. system is to prevent overdrive of the transmitter, it also performs the function of a speech compressor owing to its very fast time constant, thus allowing approximately 15 to 20 dB. compression to be incorporated on transmit, if desired.

TRANSMIT BALANCED MIXER

A hot carrier diode ring mixer is used to ensure a minimal radiation of spurious emissions. This is a broadband device using toroidal transformers, therefore, no tuning is required.

MICROPHONE AMPLIFIER, VOX/ANTI-VOX SYSTEM

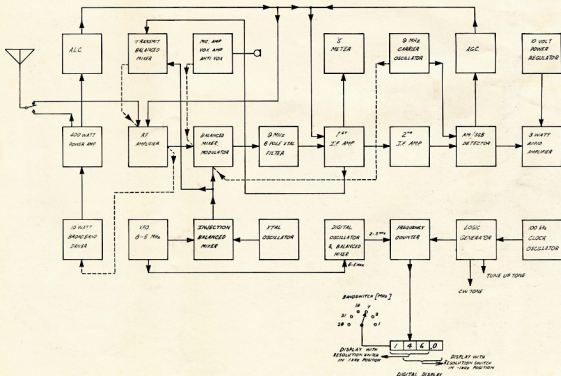
The microphone amplifier consists of a source follower driving an integrated circuit. The source follower input enables high impedance crystal to low impedance dynamic microphones to be used. The terminating resistor to suit the microphone is the only change required. There is adequate gain in the microphone amplifier to accommodate most dynamic, crystal and rocking armature microphones.

The vox amplifier consists of two transistors and a fast-acting voltage doubler deriving its input via the vox gain control from the output of the first stage of the microphone amplifier. The output of the voltage doubler is combined with the output of a second voltage doubler connected by the anti-vox control to the loudspeaker. These two voltages are out of phase and cancel prior to passing through a digital gating system and thus operating the vox relay. The vox delay is incorporated after the digital gating system which means it has no effect on the anti-vox operation. The system of vox/anti-vox gating used allows the vox to override the anti-vox, even when there is only a slight pause in the anti-vox signal, i.e. the pause between word syllables.

Four transistors, two integrated circuits, one FET and six diodes are used in this system which is self-contained on a single plug-in circuit board.

"S" METER

The "S" meter forms the dual function of "S" meter and transmit power monitor. On receive, the "S" meter is connected by a bridge circuit to the combined source voltages of the r.f. and first i.f. amplifiers. Both of these are a.g.c. controlled, giving a dynamic range on the "S" meter of approximately one microvolt to one volt. On transmit, the "S" meter is connected to a diode monitor on the transmitter r.f.



Block Diagram of the Acitron SSB-400

output. A separate meter is used to indicate plate current of the power amplifier.

9 MHz. CARRIER OSCILLATOR

This unit consists of a series mode transistor oscillator and FET source follower. Diode switching allows the correct crystal to be selected when changing from normal to reverse side-band.

A.G.C.

The a.g.c. system uses a negative voltage derived from a voltage doubler and feeds in turn to the r.f. and first i.f. amplifiers, both units being dual gate FETs. This allows a large dynamic range prior to receiver overload and in actual practice the receiver will accept a signal from noise level to almost one volt before overload occurs.

10 VOLT POWER REGULATOR

The 10 volt power regulator supplies power to all stages of the transceiver with the exception of the audio output stage, transmitter p.a. and broad-band driver.

The supply consists of a two-stage emitter follower with short circuit protection supplied from a zener referenced voltage.

400 WATT POWER AMPLIFIER

The power amplifier consists of a 1L1060 u.h.f. dual tetrode transmitting tube. This stage has a broad-band input and pi-coupler output. The valve is running approximately 800 watts p.e.p. in and delivering 400 watts p.e.p. out.

The power is slightly less on 10 metres. Approximately 1,800 volt (p.a.) and 400 volt (screen) supplies are used.

R.F. AMPLIFIER

This is a band switched r.f. amplifier consisting of a dual gate FET followed by an emitter follower. Tuning is electronically accomplished using diodes. The r.f. amplifier is used both on transmit and receive.

BALANCED MIXER -MODULATOR

One of the most interesting blocks in the transceiver is an integrated circuit balanced mixer which performs the dual function of receive balanced mixer and transmitter balanced modulator. While receiving, the input ports are connected to the r.f. amplifier and the injection balanced mixer. The output of the balanced mixer is fed via an emitter follower to the 9 MHz. crystal filter. On transmit, the input ports are changed over and the transmitter audio is fed to one port and the 9 MHz. carrier to the other. The unit then functions as a balanced modulator. The carrier suppression of the balanced modulator and filter combined is in the vicinity of 60 dB.

9 MHz. 8-POLE CRYSTAL FILTER

A 9 MHz. 8-pole crystal filter is used with a bandwidth of approximately 2.5 KHz. at the 6 dB. points, rising to only 4.1 KHz. at the 60 dB. points.

I.F. AMPLIFIERS

The first i.f. amplifier is used both on transmit and receive and consists

of a dual gate FET. It has a.g.c. applied on receive and a.l.c. on transmit.

The second i.f. amplifier also consists of a dual gate FET.

A.M./S.S.B. DETECTOR

The product detector used is a diode bridge detector and one leg of the bridge is opened when operating in the a.m. mode. A source follower connected to the output reduces the impedance to drive the audio amplifier, via the volume control.

THREE-WATT AUDIO AMPLIFIER

The three-watt amplifier consists of a pair of TO3 transistors, transformer coupled to the loudspeaker and driven by two small signal transistors.

TEN-WATT BROAD-BAND DRIVER

The 10-watt broad-band driver consists of a transformer coupled pair of v.h.f. strip-line transistors. These are driven by a single v.h.f. strip-line transistor. The complete unit is broad-band, from input to output, delivering approximately ten watts of drive to the power amplifier. This unit is contained on a separate circuit board mounted on a heat sink and does not require tuning.

V.F.O. 6-5 MHz.

The v.f.o. consists of a permeability tuned FET Vackar oscillator followed by suitable buffering stages. The unit is completely enclosed in a metal box and is substantially free from vibration, making it particularly suitable for mobile use.



INJECTION BALANCED MIXER

The injection balanced mixer is once again an integrated circuit similar to the type used in the balance modulator. The input ports are connected to the 6-5 MHz. v.f.o. and the band-set crystal oscillator. The output of this is fed via broad-band tuned circuits (to reduce the possibility of spots on receive) to an emitter follower driving both the receive and transmit mixers.

CRYSTAL OSCILLATOR

This unit is a series overtone crystal oscillator followed by a FET source follower. The appropriate crystals being switched in when changing from band to band.

DIGITAL SYSTEM

As the v.f.o. is reverse tuning from 6 to 5 MHz., a balanced mixer is used to convert this to the 2 to 3 MHz. range. This is then applied to a conventional

frequency counter. The 8 MHz. crystal used in the digital oscillator is diode switched when changing from upper to lower sideband and in some cases when changing from band to band (depending on whether additive or subtractive mixing is used). This is achieved automatically due to the logic system, enabling the digital readout to display the exact carrier frequency, rather than the centre pass band frequency.

FREQUENCY COUNTER

The frequency counter consists of eleven dual in line integrated circuits comprising complete count and memory facilities and it drives a three-digit seven-segment gallium arsenide display. It has the facility to scale down and read to one extra digit (100 Hz.).

LOGIC GENERATOR

The logic generator performs the functions necessary to generate the var-

ious gate, set and re-set pulses, etc., for the frequency counter. It also generates tones for c.w. transmission and tuning purposes. Eight dual in line integrated circuits and two transistors are used in this section.

100 KHz. CLOCK OSCILLATOR

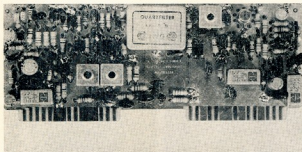
The 100 KHz. clock oscillator consists of a parallel mode 100 KHz. crystal. Twenty-one integrated circuits, five transistors and one FET are used in the complete digital readout system.

P.A. TUNING

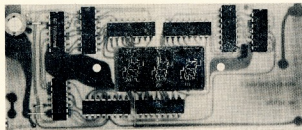
Before describing the tune-up system employed in the SSB-400, some comments are necessary on the tuning of s.s.b. transmitters in general.

It is a well known fact that an s.s.b. transmitter must be tuned at the full rated (p.e.p. value) input that it will be operating at on voice peaks in order

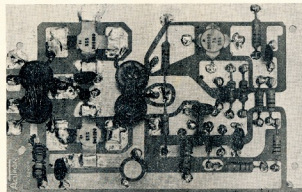
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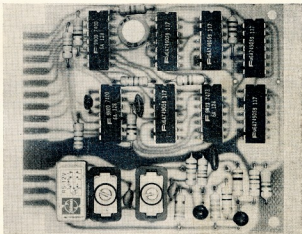
I.F. Modem.



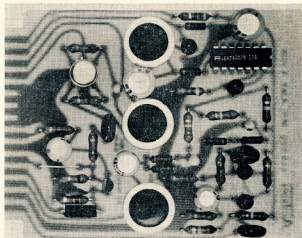
Frequency Counter and Digital Display Module.



10 Watt Broad-band Driver Module.



100 KHz. Clock Oscillator and Logic Generator module.



Microphone Amplifier, Vox/Anti-Vox Module.

transformer was an ex-radio speaker output transformer for 15 ohm output. The 500 μ F. capacitor is mainly to allow peak voltage to build up. Fig. 5 shows the voltage drop against current taken for this p.s.u., and is included as a matter of interest for those contemplating a similar type of p.s.u.

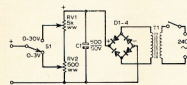


Fig. 4—0-30v. p.s.u. circuit diagram.

C1—500 μ F.
RV1—5K ohm wire wound potentiometer.
RV2—500 ohm wire wound potentiometer.
S1—2-way switch.
D1—1N4001 p.i.v. silicon rectifier diodes.
T1—240V miniature mains (Radio Spares).
Terminals or sockets—2 off.

CONSTRUCTION

The tester shown is constructed in a $\frac{1}{2}$ " wall wooden box with an $\frac{1}{8}$ " thick paxoline panel. After marking out and drilling, a sheet of substantial plain white paper is placed over the finished drilled panel and all holes rubbed in. Hole centres are easily found to allow the paper to be marked up, using a suitable pair of compasses and pen for all necessary inscriptions. The panel is then lightly gummed and the paper placed in position. After allowing a period for drying out, the author used 2" wide Sellotape to cover the papered panel and wrap a little around the edges. The large holes can be cut radially before folding inwards and the small holes pierced with pen or pencil.

Assembly of the switches, variable resistors, etc., can then take place, the Sellotape protecting the panel while wiring and soldering takes place. RV1 is a linear wire wound potentiometer and the panel can be pre-marked 0 to 6v, as the input resistance is constant. It is advisable to subdivide the 0 to 1 division into either 10 or 5 further divisions.

It is not possible to divide out the sweep of RV2 and RV3 as the load here is not constant, as can be seen by Fig. 5, which, in a way, simulates the varying load presented by the FET drain current. The station multimeter across B2 input to the tester when in use shows this up as widely varying voltages at identical positions of RV3.

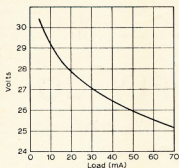


Fig. 5—P.s.u. voltage drop against load in mA.

DRAKE 2-B RECEIVER

(Continued from Page 3)

The receiver bandwidth is set to 160 metres (band "A") and the pre-selector control to mid-scale. The main tuning control is set to the frequency that corresponds to 1.9 MHz. and the trimmers CT1A and CT2A carefully adjusted for maximum received noise without an aerial connected. If the receiver is fitted with the optional 100 KHz. calibrator, this can be switched on and the trimmers adjusted for maximum S meter reading.

Correct adjustment of the trimmers can be checked by retuning to 1.8 MHz. and the pre-selector control adjusted for a noise peak (or maximum S meter reading on the calibrator signal). This peak should occur with the pre-selector at near maximum capacity (pre-selector dial near 3.5). A similar check at 2.0 MHz. should provide a pre-selector peak at near minimum capacity (28 MHz. on the dial). Provided set, tracking over the band will be satisfactory and the aerial can be connected. If it is found that the pre-selector will not peak at the band edges, or if there is an obvious difference in sensitivity over the band, this is a sure indication that the trimmers were not set correctly at 1.9 MHz. and further adjustment is required.

PERFORMANCE

A number of Drake 2-B receivers have been similarly modified for 160 metres, using the arrangement described. In every case the sensitivity throughout the band has compared favourably with that attainable on 80 metres. The G6LX receiver has been used extensively for Top Band DX working and by the Croydon N.F.D. Group, with excellent results.



OVERSEAS MAGAZINE INDEX

This month five magazines were available to us: 1. "Break-In," July 2. "CQ," Sept.; 3. "QST," July; 4. "Radio Communication," August; 5. "Short-Wave Magazine," July (all 1971 issues). Material available varied, as usual, with the accent upon antennas.

Antennas: An optimum performance array for 160, 40 and 20 metres; A half-Wave DDR Antenna; An Antenna for 75 metre WAB; The KGCQ Modified HT-18 Hy-Tower; A Rotatable Dipole for 20, 40 and 80 metres; A Cheap 10 metre Vertical, see key 1; The Ground Inverse Vertical Antenna (3); "Two-Tower" Lightweight Portable Beam for 2 metres (3); Development of an All-Band Vertical (4).

Accessories: A Simple IC Keyer with weight control (3); Katsumi CW Monitor and Electronic Keyer, review (5).

General: A Second Look at Linear Integrated Circuits (3); A 29 MHz. Digital Frequency Meter using TTL ICs, Part 2 (4); Microwave Diodes (4); Modern Filter Design for the Radio Amateur (4); The Solar Link (Amateur Radio Astronomy) (4).

Receiving: A Solid State Noise Blanker (3); A Tunable 440 MHz. FM Receiver (3); Heath Model SB-303 Receiver, review (3); An RF Noise Bridge and its uses (5); More about Satellite Reception, Part 3 (5).

Transmitting: A Power Bridge and SWR Indicator for 2 metres (3).

Other: Standard Frequency and Time Transmissions (1); Space Conference Interim Report (2).

—VK3ASC.

ACITRON SSB-400

(Continued from Page 1)

to obtain the maximum output consistent with the best linearity. For example, if a transmitter is operated at 400 watts p.e.p. r.f. output it can only be correctly adjusted when running at this level. If it is tuned up at a value below this level and the drive is then increased to full input, it will be substantially maltreated and most certainly not optimised for best linearity.

In order to meet the above, the following requirements have to be met:

- A power supply capable of running with a continual two-tone input at the full p.e.p. rating, with little or no voltage drop;
- A p.a. tube or tubes capable of standing the full p.e.p. rating for some time.

However, in practice allowing for 50% transmit/50% receive time, the actual duty cycle on speech wave forms is as little as 15% to 20%.

In summarising, it is sufficient to say that for normal operation of s.s.b. equipment, i.e. voice, we require valve and power supply capabilities far in excess of what is necessary simply to enable the transmitter to be correctly tuned.

The novel (patented) tune-up system employed in the SSB-400 overcomes this problem using a different technique. The system of tuning is accomplished by feeding a low-duty cycle wave form into the transmitter audio input. In practice, this consists of a tone burst, with a one to ten mark to space ratio, meaning that the transmitter is running during these bursts to its full rated input, but is only running an average power in the order of 10% of its maximum rating.

This in effect means that although the transmitter is running to its full rated p.e.p. input there is only one-tenth of the drain on both power supply and p.a. tube. This enables the operator to be relatively slow in carrying out the tune-up procedure and still have little possibility of damaging the final valve.

The price of the SSB-400 transceiver is £750.



HY-Q ELECTRONICS TO MANUFACTURE IN SINGAPORE

Hy-Q Electronics Pty. Ltd., the Melbourne based quartz crystal manufacturers whose Frankston, Vic., plant is now operating at capacity, are to start manufacturing in Singapore.

Mr. T. A. Dineen, marketing director of Hy-Q, stated on his return from Singapore that the new operation Hy-Q Electronics International Pty. Ltd. will be in production early in 1972 and that a new air-conditioned factory is already under construction.

Hy-Q Electronics will be joined in this venture by O'Connors Pty. Ltd., a Singapore based organisation with a 30% holding in the new company.

Mr. Dineen recently carried out a survey of East Asian markets, and with Mr. P. E. Cooper, chairman of Hy-Q Electronics, and Mr. R. C. Richards, managing director, concluded the negotiations with O'Connors and the Singapore Government.

BEWARE OF . . . CHAIN LETTERS

Another batch are in circulation. If you get one, tear it up!

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Sansei Mini-Bridge, 2 kw.	\$8 plus tax
Sansei SE405 SWR/Field Strength	\$13

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Dow Key broad-band pre-amplifiers, 2 to 30 MHz.	\$10
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AMATEUR RADIO CO-OPERATION—YB STYLE

HOWARD RIDER,* VK3ZJY

To a modern reasonably equipped Radio Amateur with his commercially built s.s.b. transceiver, cubical quad, monitoring scope, etc., moving through Indonesia is like turning back the pages of history. With very, very few exceptions no such sophisticated equipment will be found, nor even the components out of which such gear can be built.

Valves such as 6V6s, 6L6s, EL34s and 807s form the vast majority of final r.f. amplifiers and modulators, whilst antennas are nearly all of the single wire feed types (inverted L, Windom, etc.). I have only seen two folded dipoles, both manufactured from t.v. ribbon. Co-axial cable is a term read in the very few available magazines.

The few home-brew s.s.b. units I have viewed are pieces of art and reflect the ingenuity of the builders. For example, the Australian Amateur can purchase a crystal filter or p.s.n. from any one of a number of sources. His Indonesian counterpart, however, not only does not have this facility, but could not afford it. The cost would represent more than one month's, and in some cases more than two months, wages (I am assuming the price to be around \$9.00).

Following my meetings in Djakarta (Region 0), my work took me to Bogor, a township some 70 kms. distant (Region 1). Here I was very fortunate as my counterpart at the University was Soedarsono, himself a Radio Amateur (YDIPY). Being a member of the local group, he swiftly arranged an informal meeting. Present were: Sofjan Wahab (YBIFX), President; Atje Dimijati (YDIPX), Secretary; Mardijanto (YCI-1PD), M. Ali Nursiwan (YD1GA), David Djomeno (YD1GB), John Murdock (YB1AAK/WA9LRL), Soedarsono (YDIPY) and myself.

After a long general discussion it was decided to hold a public display of equipment and operation techniques on 17th August which is Indonesian Independence Day, perhaps the most important national holiday of the year.

There was to be a general exhibition in a very large hall in Bogor and permission would be sought for display area. If gained, the exhibition would be a milestone, one of the first of its kind ever held in Indonesia.

My presence was politely but firmly requested and even although at the time I would be working in Denpasar, Bali, over 1,000 miles away, it was agreed that I fly back and put in an appearance. Living in the area, John Murdock would naturally come and he offered whatever help he could give.

There was more to this display than appeared on the surface as I was later to find out—it was only the incentive to start that was needed.

For many reasons that are generally known, Amateur Radio in Indonesia is very young, actually just a little over

three years old. It is up to about the same stage that existed in Australia in the late 1930s. The old timers will remember those days as ones in which individuals, usually Amateurs, were transmitting regular programmes both on the broadcast and lower short wave bands.

That is the position that exists in Indonesia now. There are two main divisions (a) Radio Amateurs licensed by the government to operate on Amateur frequencies and within the framework of International Amateur Radio Regulations; they issue three classes of licence depending upon the examinable knowledge reached by the Amateur, and (b) Broadcast station licences issued by the government to operate within the broadcast and lower short wave bands; there are two licences depending upon the experience and qualities reached, but knowledge of radio is not a pre-requisite.

Unfortunately there are many unlicensed broadcast stations—policing the regulations is very difficult because of staffing and equipment problems. It is a slow process weeding out the unlicensed, but it is being undertaken and gathering momentum as finance and personnel become available.

I have seen a number of broadcast stations, most of which range between 60 and 100 watts input and have 807s in the final. Some are of good quality, others are very poor but all fill a need which is to give the local population some form of entertainment to listen to.

The general population, however, do not realise that there is a difference between the true Amateur and a broadcast station, to them they are one and the same. Many problems occur particularly because of the extremely limited radio knowledge of the broadcaster. Distortion and harmonic radiation in some areas create "birdies" and heterodynes all over the dial. Of course, the Amateur gets the blame.

Education of the public in this field was thus a further reason for the proposed display at Bogor. When this was first explained to me, I was a little incredulous, but now having travelled extensively throughout Indonesia, I fully agree with all that was said.

A further meeting was held three days later (Tuesday, 13th July) at which it was decided that the display would be completely Indonesian in gear—all home-built and transmissions would take place in the 3.5 MHz. band. A letter was despatched to the Hall Committee requesting available space.

The following day I began my tour which took me over 1,000 miles to the east of Bogor. I was very surprised to find how effectively the grapevine operated.

Amateurs in Jogjakarta and Surabaya not only knew of the proposal but were watching the outcome with great interest. It became obvious to me that

if successful, many other such exhibitions would be held the following year in other regions. If unsuccessful, it would be a bitter blow to the Amateur fraternity.

As promised I flew back from Bali and arrived in Bogor during the afternoon of 16th August. Things had not gone well and little had been done because no reply had been received from the Hall Committee up to 1800 hours on 16th.

When I told of the general interest shown, the President (Sofjan), Soedarsono and I went to see the organiser and space allocation committee. Valid reasons were given for no allocation, but by this time Sofjan was adamant and determined.

Things began to move. By 8 p.m. we had space, 9 p.m. we had tables and other Amateurs came to help. 10 p.m. we had display posters beautifully drawn, mostly in caricature by Atjo (Secretary). 11 p.m. we had the antenna erected—a half wave dipole on 3.5 MHz. At midnight we had gathered some components and equipment for display. After laying out where everything would go the next day, we all left the hall at 0100, all very tired but satisfied.

At 0700 on the 17th we again met at the hall and began organising power, display boards, literature to be printed and distributed to interested spectators, covering of tables, etc. By this time there were Amateurs everywhere, all doing their respective parts. I don't remember anyone having breakfast or lunch as it was a race against time—the exhibition was to be opened by the Governor at 1600 hours.

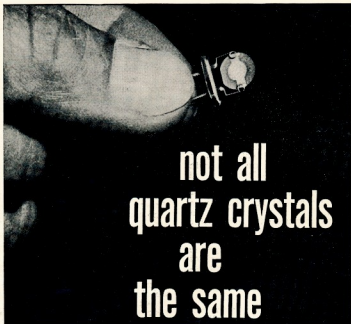
Somehow it was done and the result? One of the most colourful and most visited displays at the exhibition. Even the Governor made special mention at the opening.

It will carry on until 24th August and a timetable was drawn up always to have someone in attendance to take and answer the many numerous enquiries from people in all walks of life. The name given to the stand "Expo Orari" (Organisation of Radio Amateurs of the Republic of Indonesia) was very apt.

For me personally the whole operation had a deeper meaning. I was an Australian working in a foreign country—but in this case I was not accepted as a foreigner. I was an Amateur regardless of race, creed or colour and no special compensations were given. My hands got just as dirty as theirs in trying to overcome the many problems that arose.

Late that night I said a temporary goodbye to all concerned because I was expected many miles away the following morning to begin my work. However, I shall always remember that day and a half at Bogor where I played a very small part and saw the true Amateur co-operative spirit at its very best.

* 232 Cumberland Road, Pascoe Vale, Vic. 3044



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A TABLE OF DISTANCES BETWEEN AUSTRALASIAN V.H.F. LOCATIONS

DEREK BRUMLEY,* VK3AVW

It has long been felt that a table of distances between some of the most popular v.h.f. locations in Australasia would be very useful. Three applications come especially to mind:

- (1) The compilation of field day and contest logs, where scoring is dependent on the distance covered;
- (2) The planning of possible paths for attempts at distance records, and
- (3) Calculation of path loss for scatter circuits.

Small distances may be obtained fairly accurately by reading directly off a map, but above a few hundred miles it becomes necessary to calculate the great circle distance between the points of interest. This is a long and tedious process if done manually, but fortunately it is well within the capabilities of the modern digital computer.

A programme has been developed which calculates the angle subtended at the earth's centre by any two points on the earth's surface, given their latitudes and longitudes. This is then multiplied by the earth's radius to give the required great circle distance.

The programme makes allowance for the difference between the polar and equatorial radii of the earth by using the latitudes of each pair of locations to calculate an "average" radius for each path. Although this is only a first order correction, it is sufficient for the present application. The accuracy of distances in the table is limited by that of the latitudes and longitudes which were taken to the nearest minute of arc.

Those within Victoria were obtained from survey maps; the rest were found from the "Times World Index". The computer calculates the distances to several significant figures, but rounds them off to the nearest integer before printing.

No apologies are offered for the choice of locations. It was hard enough to restrict the number to sixty, but any increase would have made the table prohibitively large.

The table appears on pages 14 and 15.

* 32 Faversham Rd., Canterbury, Vic., 3126.

This month there are no
local Technical Articles.

WHY?

We have the Articles,
but few Draughtsmen.

CAN YOU HELP US?

VK3 or Interstate aid welcome

John Moyle Memorial National Field Day Contest, 1972

SATURDAY, 12th FEBRUARY, TO SUNDAY, 13th FEBRUARY, 1972

The Federal Contest Committee of the Wireless Institute of Australia invites all Australian Amateurs and Short Wave Listeners to participate in this Annual Contest, which is held to perpetuate the memory of John Moyle, whose efforts advanced the Amateur Radio Service.

There are two divisions of this Contest, one of 24 hours continuous duration, and one of 6 hours continuous duration. The six-hour period has been included to encourage the operator who is unable to participate for the full 24-hour period. The 24-hour continuous operation is to be chosen by an operator from the 26-hour period.

An operator using 25 watts or less input to the final stage will be considered for a certificate where his activity warrants its issue.

DATE

From 0600 GMT, 12th February, 1972, to 0800 GMT, 13th February, 1972.

OBJECTS

The operators of Portable and Mobile Stations within all VK Call Areas will endeavour to contact other Portable/Mobile and Fixed Stations in VK Call Areas and Foreign Call Areas.

RULES

1. There are two divisions, one of six (6) hours, and one of twenty-four (24) hours duration. The six-hour period for operating may be chosen from any time during the Contest, but the six-hour period so chosen must be continuous. In each division, there are six sections:—

- Portable/Mobile Transmitting, Phone.
- Portable/Mobile Transmitting, C.w.
- Portable/Mobile Transmitting, Open.
- Portable/Mobile Transmitting, Multiple Operation, open only.
- Fixed Transmitting Stations working Portable/Mobile Stations, open only.
- Reception of Portable/Mobile Stations.

2. All Australian Amateurs are encouraged to take part. Operators will be limited to their licensed power. For Portable entries, power shall be derived from a self-contained and fully portable source.

(a) Portable/Mobile Stations shall not be situated in any occupied dwelling or building. Portable/Mobile Stations may be moved from place to place during the Contest.

No apparatus shall be set up on the site earlier than 24 hours prior to the Contest.

All Amateur bands may be used, but no cross band operating is permitted. Cross mode operation is permitted.

Entrants in Section (d) for Multiple Operator Station can set up separate transmitters to work on different bands

at the same time. All such units of a Multiple Operator Station must be located within an area that can be encompassed by a circle not greater than half a mile diameter.

For each transmitter of a Multiple Operator Station a separate log shall be kept with serial numbers starting from 001, and increasing by one for each successive contact. All logs of a Multiple Operator Station shall be submitted by the operator under whose Call Sign the transmitters are working. No two transmitters of a Multiple Operator Station are permitted to operate on the same band at any time.

3. Amateurs may enter for any section.

4. One contact per station for phone to phone, also one for c.w. to c.w. per band is permitted. Cross mode operation will be accepted for scoring.

5. Entrants must operate within the terms of their licences and in particular observe the regulations with regards to portable operation.

6. For VK Stations contacting VK stations, the exchange of serial numbers consisting of RS or RST report plus three figures commencing with 001 and increasing by one for each successive contact by the VK station shall be proof of contact. The exchange of RS or RST reports only with non-VK stations shall be sufficient proof of contact for this contest.

7. Scoring:—

(a) Portable/Mobile Stations:

For contacts with Portable/Mobile Stations outside entrant's Call Area 15 points

For contacts with Portable/Mobile Stations within entrant's Call Area 10 points

For contacts with Fixed Stations outside the entrant's Call Area 5 points

For contacts with Fixed Stations within the entrant's Call Area 2 points

(b) Fixed Stations:

For contacts with Portable/Mobile Stations outside entrant's Call Area 15 points

For contacts with Portable/Mobile Stations within entrant's Call Area 10 points

Operation via active repeaters or transmitters is not allowed for scoring purposes.

Example of Victorian S.w.'s Log

Date Time (GMT)	Band (mhz)	Call Sign Heard	RST No. Sent	Station Worked	Pts. Cm.
13/2/72					
0600	80	VK2AAH/P	59001	VK3ATL/P	15
0610	80	VK3ATL/P	59005	VK3OV	10
0620	40	VK2AAH/P	59004	VK6VE/P	15
0640	20	VK3QV	59010	VK9OX/P	*
0755	20	VK4OF/P	59040	VK4OX/P	15

* No claim Fixed Station.

8. The following shall constitute Call Areas: VK1, VK2, VK3, VK4, VK5, VK6, VK7, VK8, VK9 and VK0.

9. All logs shall be set out under the following headings: Date/Time (G.M.T.), Band, Emission, Call Sign, RST/No. Sent, RST/No. Received, Points Claimed. Contacts must be listed in numerical order.

In addition, there shall be a front sheet showing the following information:—

Name Address

Call Sign Section

Division (6-hour or 24-hour)

Points Claimed

Call Sign of other op./s (if any)

Location of Portable/Mobile Station

From hours to hours

A brief description of equipment used, and points claimed, followed by the declaration:

"I hereby certify that I have operated in accordance with the rules and spirit of the Contest."

Signed Date

10. The right is reserved to disqualify any entrant who, during the Contest, has not observed the Regulations and the Rules of this Contest, or who has consistently departed from the accepted code of operating ethics.

11. The decision of the Federal Contest Manager of the Wireless Institute of Australia is final and no disputes will be entertained.

12. Certificates will be awarded to the highest scorer of each section of each 6 or 24-hour division. Additional certificates may be issued at the discretion of the F.C.C. The 6-hour certificates cannot be won by a 24-hour entrant.

13. Return of Logs: All entries must be postmarked not later than 6th March, 1972, and be clearly marked "John Moyle Memorial National Field Day Contest, 1972", and addressed to:

Federal Contest Manager, W.I.A.,
Box 638, G.P.O.,
Brisbane, Qld., 4001.

Written comments are invited from all contestants.

RECEIVING SECTION

14. This section is open to all Short Wave Listeners in VK Call Areas. The Rules shall be the same as for the Transmitting Stations, but may omit the serial numbers received.

Logs must show the Call Sign of the Portable/Mobile Station heard, the serial number sent by it, and the Call Sign of the Station being worked.

Scoring will be on the same basis as for Transmitting Stations. It will not be sufficient to log a station calling CQ. A portable/mobile station may be logged once only for phone and once only for c.w. in each band.

Awards: A certificate will be awarded to the highest scorer of each of the 6-hour and the 24-hour divisions.

DISTANCES BETWEEN AUSTRALASIAN V.H.F. LOCATIONS

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
1	—	26	136	361	131	235	511	223	137	326	150	308	116	333	290	297	339	290	404	399	253	368	286	446	247	174	762	599	749	1045		
2	—	—	111	385	111	214	535	249	155	351	170	331	143	307	265	270	354	263	387	373	228	342	259	421	232	149	781	622	770	1055		
3	136	111	—	472	237	439	299	137	115	429	294	415	126	381	304	330	452	312	561	517	176	249	159	311	148	39	839	735	843	1058		
4	361	385	472	—	236	511	249	155	163	429	78	336	59	273	651	605	472	631	611	626	612	710	631	757	606	508	534	738	897	817		
5	131	151	237	236	—	301	389	132	26	215	97	180	100	430	378	409	438	398	430	497	376	476	396	534	370	274	632	472	619	934		
6	235	214	439	511	321	301	—	674	429	285	514	370	462	343	153	92	179	183	157	185	212	202	216	161	237	203	842	741	882	1019		
7	511	535	636	154	389	674	429	—	299	296	192	373	462	313	414	815	759	789	826	787	750	881	763	616	785	911	757	662	353	105	280	79
8	249	249	335	166	122	439	299	296	—	192	107	77	133	116	381	304	330	452	312	561	517	176	249	159	311	148	39	839	735	843	1058	
9	137	155	230	242	26	285	306	153	—	239	122	185	124	430	305	405	430	391	460	496	374	469	399	520	369	287	506	395	550	955		
10	326	351	449	78	215	514	192	107	229	—	194	90	223	465	592	620	650	618	636	711	579	689	607	848	673	487	506	290	459	956		
11	150	176	294	236	97	370	375	77	122	164	—	194	30	482	435	447	481	440	517	548	400	518	438	593	293	322	663	471	632	1061		
12	351	415	59	190	462	429	313	153	122	90	194	—	228	603	547	388	614	575	535	668	556	653	574	699	550	450	469	292	443	327		
13	142	251	732	100	343	414	111	124	223	229	39	228	—	481	404	411	445	405	480	515	363	483	400	562	256	290	697	508	669	1025		
14	233	307	196	661	430	153	815	815	451	645	482	405	449	—	60	80	49	64	352	67	146	68	73	113	153	160	905	858	1013	1158		
15	290	265	154	605	378	82	759	501	365	592	435	547	404	60	—	105	96	82	214	122	154	125	90	158	158	116	95	830	954	1102		
16	297	270	173	645	409	179	739	520	403	620	447	588	411	80	105	—	42	23	319	124	70	74	18	188	177	139	1005	878	1013	1198		
17	359	304	201	672	438	183	826	552	430	650	481	614	446	49	96	42	—	41	300	83	111	38	46	147	119	124	1021	903	1034	1198		
18	297	259	843	297	100	157	787	512	391	607	430	475	405	73	59	41	296	—	118	83	79	9	179	189	125	907	847	802	893	1176		
19	404	387	290	611	430	185	755	561	408	626	517	555	496	252	214	319	300	296	—	272	366	315	30	241	269	127	947	802	893	1176		
20	399	373	265	726	497	212	881	617	406	711	548	608	515	67	122	124	118	172	—	194	64	125	66	201	226	1053	962	1074	1198			
21	253	228	152	612	376	202	763	476	374	579	400	556	363	146	154	70	111	83	366	194	—	139	74	258	8	129	990	848	991	1211		
22	368	342	240	710	476	216	864	590	406	699	518	653	468	68	125	74	38	79	315	64	139	—	83	130	147	202	1037	941	1071	1226		
23	259	259	159	631	296	151	735	501	395	607	430	475	405	73	59	18	46	9	304	125	74	187	86	124	188	124	988	863	991	1226		
24	446	421	311	757	534	237	911	659	520	748	598	699	562	118	158	188	147	179	347	66	230	130	157	205	27	1052	977	1071	1226			
25	247	222	148	606	370	203	757	469	389	573	383	550	356	153	158	77	119	89	369	291	8	147	80	265	—	127	962	842	951	1211		
26	174	149	39	508	274	94	682	391	256	487	322	450	290	180	116	139	164	128	279	328	129	202	124	272	127	—	888	740	874	1062		
27	762	781	839	434	632	842	353	398	628	506	653	469	607	995	835	1005	1021	987	847	1033	900	1057	988	1062	966	868	—	257	121	71		
28	749	762	805	238	472	799	629	606	510	618	659	443	609	1013	954	1013	1034	964	802	852	848	941	863	972	842	740	257	—	175	713		
29	1045	1055	1068	817	934	1019	794	958	818	886	1001	827	1025	1156	1102	1108	1138	1175	933	1197	1211	1226	1181	1210	1210	1062	472	715	590	—		
30	570	593	675	210	442	711	89	369	445	256	444	262	481	837	799	848	872	834	771	921	818	910	833	946	813	709	264	31	195	713		
31	978	994	1041	666	510	1027	588	828	680	740	890	957	932	1122	1118	1118	1208	1179	968	1231	1192	1243	1181	1231	1189	1065	238	468	325	635		
32	641	694	744	281	700	777	151	440	615	336	515	333	553	924	806	916	941	903	829	985	898	979	902	1011	1021	778	220	46	130	624		
33	820	849	864	1066	627	909	1141	665	603	827	731	555	705	1005	997	1070	1060	1048	1116	1116	1057	1121	1054	1124	1053	984	88	313	153	444		
34	558	580	657	205	429	686	119	369	429	270	440	251	47	834	776	839	852	814	737	897	803	889	814	919	797	690	240	70	192	675		
35	1122	1138	1167	840	999	1135	779	996	996	917	1052	863	1081	1282	1224	1212	1318	1291	1075	1328	1319	1349	1295	1318	1313	1187	427	694	527	204		
36	906	976	475	818	636	362	960	768	815	834	720	763	698	345	343	434	389	407	208	321	436	384	150	205	695	445	1022	1001	1079	1033		
37	478	448	341	742	535	235	952	665	517	445	608	654	558	899	895	269	233	252	161	167	335	228	261	112	341	308	1007	1040	1048	1098		
38	914	820	849	644	1066	627	909	1141	665	603	827	731	555	705	1005	997	1070	1060	1048	1116	1116	1057	1121	1054	1124	1053	984	88	313	153	444	
39	515	680	657	205	429	686	119	369	429	270	440	251	47	834	776	839	852	814	737	897	803	889	814	919	797	690	240	70	192	675		
40	1122	1138	1167	840	999	1135	779	996	996	917	1052	863	1081	1282	1224	1212	1318	1291	1075	1328	1319	1349	1295	1318	1313	1187	427	694	527	204		
41	906	976	475	818	636	362	960	768	815	834	720	763	698	345	343	434	389	407	208	321	436	384	150	205	695	445	1022	1001	1079	1033		
42	478	448	341	742	535	235	952	665	517	445	608	654	558	899	895	269	233	252	161	167	335	228	261	112	341	308	1007	1040	1048	1098		
43	914	820	849	644	1066	627	909	1141	665	603	827	731	555	705	1005	997	1070	1060	1048	1116	1116	1057	1121	1054	1124	1053	984	88	313	153	444	
44	515	680	657	205	429	686	119	369	429	270	440	251	47	834	776	839	852	814	737	897	803	889	814	919	797	690	240	70	192	675		
45	1122	1138	1167	840	999	1135	779	996	996	917	1052	863	1081	1282	1224	1212	1318	1291	1075	1328	1319	1349	1295	1318	1313	1187	427	694	527	204		
46	906	976	475	818	636	362	960	768	815	834	720	763	698	345	343	434	389	407	208	321	436	384	150	205	695	445	1022	1001	1079	1033		
47	478	448	341	742	535	235	952	665	517	445	608	654	558	899	895	269	233	252	161	167	335	228	261	112	341	308	1007	1040	1048	1098		
48	914	820	849	644	1066	627	909	1141	665	603	827	731	555	705	1005	997	1															

DISTANCES BETWEEN AUSTRALASIAN V.H.F. LOCATIONS

	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	
1	570	978	641	830	558	1122	906	472	914	513	496	556	652	483	538	1780	2224	2053	1582	1924	434	434	535	447	1217	1959	1434	1575	1233	1447	
2	503	994	664	848	584	1135	976	446	896	488	471	535	635	465	568	1737	2006	2043	1561	1962	412	411	516	417	1211	1958	1450	1384	1320	1459	
3	675	1041	744	906	607	1167	475	341	804	377	360	434	545	373	468	1630	2112	1942	1459	1798	368	352	472	369	1158	1925	1545	1455	1380	1450	
4	210	660	281	501	205	840	816	816	742	1066	810	802	787	622	685	813	1979	2344	2221	1763	2113	795	794	688	794	1192	1923	1397	1461	1467	1487
5	442	850	513	700	429	999	639	535	927	563	580	603	668	510	629	1808	2233	2068	1613	1959	653	563	665	567	1167	1981	1440	1425	1390	1481	
6	711	1027	777	907	686	1135	362	238	689	292	251	322	429	258	354	1535	1997	1830	1347	1688	394	394	524	428	1055	1933	1360	1569	1506	1655	
7	89	588	515	413	119	779	669	892	1188	962	904	321	854	389	855	1201	2445	2334	1885	2235	944	941	1031	809	1253	1843	1360	1480	1507	1483	
8	369	828	448	685	369	996	758	665	1054	720	707	732	797	641	751	1490	2356	2214	1742	2069	640	645	732	641	1240	1946	1331	1547	1327	1508	
9	445	840	515	692	429	996	615	517	903	577	566	739	645	468	608	1787	2206	2052	1590	1837	564	565	671	571	1191	1856	1460	1540	1433	1506	
10	286	740	336	572	270	917	834	745	1100	806	785	800	743	603	728	2002	2230	2259	1795	2144	751	752	839	746	1255	1910	1334	1384	1389	1413	
11	444	890	515	736	424	1052	720	636	1020	657	643	682	759	397	713	1861	2227	2171	1761	2047	571	568	658	564	1253	1908	1344	1332	1312	1385	
12	262	497	333	537	251	863	766	684	1017	752	743	731	770	320	757	1865	2302	2174	1713	2063	742	741	839	744	1166	1828	1420	1464	1463	1489	
13	481	922	555	751	467	1081	698	501	1004	627	611	660	743	578	691	1867	2313	2180	1862	2026	533	529	617	526	1246	1981	1332	1326	1300	1385	
14	857	1178	834	1059	834	1282	345	189	683	181	169	304	427	292	336	1454	1974	1789	1301	1632	205	200	411	318	1127	1922	1096	1561	1462	1664	
15	799	1118	896	989	776	1224	343	185	683	223	207	301	423	296	336	1460	1981	1803	1317	1653	235	230	433	356	1096	1883	1681	1563	1491	1660	
16	848	1198	917	1070	829	1312	424	269	767	263	237	393	535	367	415	1553	2032	1895	1378	1706	206	217	349	251	1109	1990	1632	1482	1403	1586	
17	872	1209	941	1086	852	1318	369	233	732	231	196	349	494	341	380	1411	2012	1824	1335	1684	217	211	363	276	1175	1970	1604	1526	1428	1625	
18	854	1179	903	1053	814	1291	407	252	750	283	239	365	505	246	286	1515	2038	1853	1364	1695	229	241	372	274	1170	1967	1623	1480	1421	1605	
19	721	996	829	905	737	1075	208	164	510	256	256	345	476	248	302	1378	1920	1861	1184	1530	511	531	663	568	882	1671	1837	1754	1682	1839	
20	921	1231	988	1116	897	1328	321	167	662	139	113	263	433	296	312	1399	1834	1743	1254	1582	262	279	407	323	1128	1929	1746	1597	1511	1705	
21	818	1192	885	1057	903	1316	489	335	832	332	307	447	585	422	480	1555	2190	1934	1464	1775	190	202	326	224	1247	2032	1533	1441	1340	1513	
22	101	1243	979	1121	869	1349	394	238	725	201	174	345	495	349	375	1492	1986	1804	1315	1641	205	221	351	263	1183	1962	1608	1524	1448	1618	
23	623	1181	902	1054	814	1285	416	261	759	261	1019	375	515	354	407	1523	2047	1862	1373	1704	223	224	366	267	1185	1975	1623	1489	1414	1581	
24	846	1231	1011	1124	919	1318	290	112	906	74	51	224	378	253	252	1336	1967	1767	1188	1517	321	339	445	354	1077	1881	1811	1664	1577	1771	
25	813	1198	853	1053	977	1313	495	341	838	339	314	453	591	427	486	1600	2127	1941	1453	1783	200	206	326	225	1251	2034	1546	1410	1334	1511	
26	709	1065	778	934	690	1187	445	306	778	349	322	403	520	349	436	1594	2084	1911	1426	1764	325	331	455	352	1148	1822	1373	1475	1413	1564	
27	264	238	220	68	240	427	1022	1067	1154	1094	1098	1095	971	886	1020	2083	2055	2234	1926	2179	1165	1168	1296	1197	1051	1736	1679	1827	1859	1823	
28	31	488	46	313	70	684	1001	948	1205	1024	1019	975	962	699	597	2133	2455	2336	1888	2249	1053	1052	1126	1032	1219	1772	1434	1571	1603	1569	
29	195	325	130	153	182	527	1079	1040	1258	1139	1128	1658	1490	950	1072	2149	2415	2327	1902	2206	1161	1182	1282	1262	1167	1654	1414	1700	1700	1719	
30	713	324	685	444	675	204	1033	1089	1013	1182	1194	1035	934	946	1035	1870	1955	1931	1589	1910	1402	1411	1537	1434	688	1064	2148	2271	2284	2290	
31	—	499	71	324	47	691	971	917	1177	993	987	945	953	838	967	2105	2411	2212	1872	2222	1004	1003	1098	1004	1202	1768	1439	1566	1505	1563	
32	499	—	447	176	478	240	1148	1162	1217	1253	1258	1139	1076	1036	1148	2121	2363	2222	1850	2184	1399	1393	1567	1406	965	1782	1884	2055	2091	2043	
33	71	447	—	272	92	645	1036	1078	1219	1095	1151	1062	1062	894	1022	2149	2436	2431	1901	2259	1075	1074	1169	1075	1211	1747	1463	1609	1644	1603	
34	324	176	272	—	304	375	1075	1066	1193	1154	1050	1060	1019	953	1073	2116	2318	2255	1856	2198	1252	1255	1364	1264	1057	1506	1719	1889	1916	1871	
35	47	476	92	304	—	963	935	896	1134	964	899	910	913	803	931	2063	2366	2299	1928	2170	992	991	1090	995	1135	1727	1681	2058	2186	2184	
36	691	204	645	375	663	—	1198	1236	1308	1330	1339	1195	1108	1099	1199	2074	2149	2121	1704	2114	1511	1518	1839	1538	888	1768	1688	2594	2285	2245	
37	971	1148	1026	1075	935	1198	—	156	343	209	236	42	126	133	9	1712	1839	1468	1085	1328	581	589	722	644	828	1636	2019	1905	1827	2003	
38	917	1162	978	1066	866	1236	136	—	499	93	107	116	268	148	147	1289	1788	1668	1121	1458	429	446	572	490	965	1770	1877	1576	1871	1831	
39	1177	1217	1219	1198	1134	1208	343	209	—	535	564	384	252	432	352	931	1310	1160	967	1947	816	935	1053	881	562	1738	2247	2247	2170	2341	
40	903	1253	1056	1154	964	1330	299	93	535	—	—	279	133	238	201	1263	1795	1604	1115	1443	981	980	1518	881	446	1945	2081	2162	2145	2344	
41	807	1258	1051	1156	959	1339	236	107	564	29	—	203	356	255	227	1286	1823	1630	1141	1469	352	371	490	418	1061	1868	1960	1707	1617	1817	
42	945	1319	1062	1060	910	1195	42	116	394	179	203	—	158	103	33	1209	1861	1590	1026	1267	544	561	696	606	857	1965	1978	1863	1763	1981	
43	953	1076	1002	1019	913	1198	126	268	262	333	358	155	—	171	133	1157	1752	1418	946	1294	697	714	840	757	703	1511	2025	1949	1924	2054	
44	838	1036	894	953	803	1099	133	148	432	238	255	168	171	—	129	1309	1742	1561	1104	1450	594	569	700	610	835	1933	1915	1824	1757	1913	
45	967	1142	1022	1073	931	1199	9	147	352	201	227	33	133	129	—	1179	1465	1476	993	1336	572	590	714	635	835	1645	2011	1896	1818	1994	
46	2105	2121	2149	2118	2063	2074	1172	1289	931	1263																					

QUEENSLAND WINS R.D.

Yes, VK4, with VK9's help, has won the R.D. Contest for 1971 by a substantial margin in a very friendly contest. Congratulations to the winners and thanks to all who participated. I hope everyone enjoyed themselves.

With few exceptions, all the high scoring logs were credits to the compilers. My real admiration and thanks for jobs well done. (Who had the typist on R.D. logs?) I would like you to see how well some of these logs were set out. There were duplications, but invariably there were a few points counted low to make up.

To ensure that VK4 does not capture the trophy during 1972, and for other reasons, I would appreciate you analysing the results and considering them carefully.

Tight contests make my task much more difficult, but I don't mind as long as we go ahead. Let your Federal Councillor have your ideas on a better contest—he is interested.

I have some thoughts on contest closing dates and may apply them next year.

A few contestants should look closely at contest rule 6 and P.M.G. regulations (82).

Congratulations to the listeners who submitted some fine logs.

Thanks to those ops. who put in a little note telling how they enjoyed the contest and offering suggestions of improvement.

I noted a full c.w. listeners' log from Eric Trebilcock. Trevor VK2NS put in

DETAILS OF DIVISIONAL SCORES

Division	Logs	Licenses	% Participation	Average Top Six Logs	State Points	State Score
VK2+1+9	141	2,162	6.5	984	31,165	3,014
VK3	75	1,971	3.8	817	21,689	1,642
VK4+9	124	809	14.9	1,150	30,944	5,886
VK5+8	86	802	10.7	1,245	28,950	4,341
VK6+9	60	512	11.5	1,288	16,876	3,268
VK7+0	61	243	25	730	10,603	3,389

You will note that compared to last year, ref. "A.R." Nov. 1970, we are not holding our own. This is not good because the Institute is moving forward quite steadily and successfully. Why have we not advanced with the R.D. Contest? Looking further, note the high participation level of VK7 + VK9. Even by adding a high average top six logs VK7 + VK9 would not have won this year. They needed more State points.

VK5 + VK8 and VK6 + VK9 would doubtless be around the top with a higher participation level as their average points per log is above VK4.

VK2 put up a good show, but together with VK3, seems to have the problem of participation. Why can't these States have a higher level?

There are some interesting solutions to your problem.

Most States seem to have their own form of log which goes out with their bulletin. This helps, but, as VK4 has found, is not sufficient. There must be a drive to get operators in the contest. VK4's success of the last two years has been assisted by the activities of Northern W.I.A. members.

I hope that after considering these results, you do something about making your State a winner next year.

NEW SOUTH WALES

Points		Phone		Points	
VK2BEC	868	VK2NF	158	VK2SW	63
200	963	2AGZ	186	22ZX	61
2BNS	941	2BAZ	170	2SG	61
2DM	886	2APF	168	2TS	57
2XT	851	2BZ	159	2ADD	54
2AJY	778	2APP	150	2YS	52
2BZF	777	2AC	155	2AC	48
2VG	583	2DQ	151	2AXI	45
2ATT	571	2FN	150	2JF	42
2AGP	566	2BDB	148	2AAB	42
2JP	508	2AJ	146	2AC	40
2BWJ	491	2AFA	141	2CW	40
2RX	482	2RU	132	2ACZ	40
2AVJ	480	2AKR	126	2AAW	39
2AAC	460	2AJL	119	2ZP	38
2CS	458	2BKG	117	2ABC	37
2BMM/2P	447	2YN	113	2IK	36
		2LH	112	2AQ	35
2AWN	439	2ASJ	111	2ZF	31
2AIM	385	2AOX	102	2AVT	28
2BDN	371	2BMD	102	2AKX	27
2OH	370	2CK	101	2AWX/P	21
2BNK	336	2AHM	97		
2BRU	323	2ZG	97	2ZWG	20
2AIA	319	2AKY	90	2LA	17
2QC	300	2BMX	90	2BFO/P	16
2ADA	275	2AMA	88	2ZJ	14
2GV	218	2XD	85	2FJ	13
2AKJ	211	2BJT	76	2HX	8
2PF	205	2BKM	76	2ZTM	8
2AHP	204	2CT	73	2ZTP	7
2APQ	203	2GN	63	2ZUT	6
2UJ	194			2ZWC	6

Points		Open		Points	
VK2BO	1139	VK2AJ	268	VK2RJ	67
2DO	361	2AV	140	2AU	42
2BLK	321	2AHM	82	2PP	12
2FU	288	2HZ	74		

Points		C.W.		Points	
VK2NS	504	VK2YJ	136	VK2AKX	36
2GR	401	2ZO	82	2BF	31
2BF	317	2AMB	80	2XQ	45
2VN	249	2ZC	77	2IV	40
2LT	184	2BKC	74	2XJ	27
2QL	161	2JY	62	2AWI/P	11
2HW	143	2PQ	38		

Receiving

M. J. Rodden	856	Points
J. H. Hillard, L2074	639	"
G. Rossam	605	"
P. J. Vernon, L2259	546	"
Belmore Youth Radio Club	533	"
C. Ferguson, L2946	353	"
D. W. Shephard	136	"
W. Newport	70	"

VICTORIA

Points		Phone		Points	
VK3VK	1032	VK3YJ	419	VK3PR	150
3DF	872	3AUN	414	3AAM	131
3SM	856	3AGB	396	3AIS	106
3AXV	689	3BER	354	3ACW	98
3WV	680	3ZJ	284	3ZD	85
3ADW	679	3HE	284	3ACA	69
3AMO	664	3BP	254	3AJP	67
3APS	586	3AXJ	253	3BRB	62
3CIF	583	3AJX	246	3DY	61
3KX	579	3AKM	227	3BCZ	51
3AYL	570	3ZT	227	3AGH	35
3AYF	541	3CDX	212	3WM	32
3KX	521	3BR	210	3BCZ	22
3EP	514	3LV	204	3AHL	22
3KI	511	3BAM	196	3KS	19
3AMT	508	3HZ	174	3ARA	17
3QP	489	3KR	168	3BP	11
3BJB	464	3AXQ	160	3ZPN	11
3AII	424			3ANM	6

AUSTRALIAN CAPITAL TERRITORY

Points		Phone		Points	
VK1BC	578	VK1FT	273	VK1CG	136
1JL	570	1MP	184	1LF	73
1ZT	324	1AN	140	1LN	19

Points		Open		Points	
VK1AOP	787	VK1DA	517	VK1YR	66
1VK	704	1EP	287		

Points		C.W.		Receiving	
VK1BC	578	VK1YR	66		
3QV	499				
3BDE	437				

Points		Open		Points	
VK3BC	560	VK3YJ	419	VK3EZ	89
3QV	499	3DG	210	3ARV	88
3BDE	437	3AOT	121	3BDL	25

Points		C.W.		Points	
VK3BE	455	VK3YJ	218	VK3TX	102
3KX	418	3RJ	145	3APN	102
3ZO	236			3ZM	55

Receiving

St. John's College	.....	1330	Points
G. Latch, L3400	.....	735	"
E. Treblecock, L3042	.....	248	"
R. Ward, L3438	.....	155	"
D. M. Harrison, ISWL13440	.....	27	"

Receiving

C. H. Hannaford, L5096	.....	1253	Points
B. C. Channam, SWL5118	.....	809	"
I. R. Kirk, L5145	.....	678	"
Jim, L5083	.....	625	"
E. A. Vale, L5132	.....	510	"
R. J. Elliot, L5158	.....	349	"
R. G. Edmeades, SWL5122	.....	142	"
L. M. Earl, SWL5113	.....		"

Receiving

R. Mutton	.....	1099	Points
M. J. Fox	.....	1027	"
R. J. Everett, L7043	.....	788	"
B. Livingston, L7049	.....	535	"
I. Ellings, L7038	.....	389	"

QUEENSLAND

Points	Phone	Points	Phone	Points	Phone
VK4XY 1198	VK4NB 218	VK4GT 42			
4EP 1192	4VX 212	4VX 475			
4ZQ 1102	4EB 180	4JJ 41			
4FT 985	4EJ 171	4QS 36			
4EP 985	4EB 167	4XN 36			
4LT 865	4XV 158	4XN 36			
4NP 804	4MJ 157	4XZ 35			
4DG 802	4CZ 155	4ZM 35			
4LE 724	4OP 154	4MU 35			
4DJ 679	4RJ 150	4LO 31			
4EP 669	4RF 149	4ZC 31			
4RH 649	4LZ 141	4PV/P 30			
4TN 590	4BG 139	4CW 28			
4QA 566	4ZP 137	4GS 23			
4IE 562	4GI 132	4RG 22			
4IZ 516	4NS 115	4NV 20			
4OW 495	4FE 114	4SF 17			
4EZ 494	4LP 113	4ZBH 16			
4YL 451	4OT 108	4EV 15			
4PS 427	4VS 108	4NZ 15			
4TU 392	4FN 98	4BQ 13			
4BQ 385	4XJ/M 96	4KS 12			
4IO 382	4FP 82	4NG 11			
4JM 355	4OR 80	4ZDG 11			
4CP 350	4DV 73	4ZEA 11			
4EB 349	4OR 73	4ZRG 11			
4FP 344	4TK 73	4ZTL 11			
4GQ 338	4OH 70	4ZJO 8			
4PJ 332	4EH 67	4ZTK 8			
4YM 295	4HA 60	4KB 7			
4ZJ 291	4HJ 59	4ZAM 6			
4GQ/T 278	4SO 57	4ZFA 6			
4CI 270	4BM 54	4ZRL 6			
4HJ 231	4UC 52	4ZHS 5			

Open

VK4II 940	VK4WR 423	VK4GP 129
4FK 536	4KA 296	4GH 34
	4XC 164	

C.W.

VK4XX 301	VK4VR 99	VK4KK 27
4XW 237	4HH 88	4FT 24
4KI 128	4CA 34	4ON 7

Receiving

G. Lee-Manwar	.....	1043	Points
K. Cunningham, L4104	.....	790	"
P. Whiteley	.....	107	"

SOUTH AUSTRALIA

Points	Phone	Points	Phone	Points	Phone
VK5QX 1290	VK5RR 422	VK5LC 82			
5NB 1286	5VT 406	5WR 79			
5PT 1261	5VB 345	5LQ 78			
5ZZ 1058	5AS 293	5RI 75			
5BW 978	5CY 290	5FL 75			
5NM 940	5ZU 281	5DO 67			
5JR 924	5PH 251	5GS 59			
5UP 823	5WN 227	5GZ 49			
5LJ 817	5EK 216	5OT 44			
5EP 791	5FD 211	5LW 39			
5GM 788	5MC 211	5ZKK 39			
5DK 759	5CL 205	5ZQ 34			
5IN 754	5CA 188	5DF 31			
5SC 752	5DV 184	5SS 22			
5ST 712	5MA 166	5ZFJ 20			
5WV 629	5CF 127	5ZLZ 20			
5EN 565	5NJ 111	5ZXX 19			
5AX 489	5GV 103	5ZWW 17			
5QV 470	5UF 101	5ZDX 12			
5ZB 451	5TY 88	5CJ 5			
	5TU 83				

Open

VK5RG 1316	VK5EJ 796	VK5FJ 122
5RI 1015	5FM 413	5WI 84
5IF 975	5HM 196	5TL 60

C.W.

VK5MY 305	VK5ZX 129	VK5KU 83
5LD 162	5MZ 103	5RK 30
5OR 149	5BS 101	5HO 6
	5AU 63	

WESTERN AUSTRALIA

Points	Phone	Points	Phone	Points	Phone
VK6CT 1575	VK6KL 161	VK6DE 31			
6ZK 1420	6LG 155	6HT 23			
6LK 1048	6GB 136	6DC/HU 20			
6KV 957	6WL 91	6BO 18			
6DA 907	6WY 90	6XW 16			
6AO 747	6AWI 50	6ZFJ 16			
6JY 517	6LO 17	6OR 11			
6TX 484	6DC 97	6PK 10			
6JK 454	6SH/P 32	6AT 8			
6AJ 369	6NA 51	6CQ 6			
6FI 279	6BY 50	6ZDK 6			
6DD 217	6TU/P 47	6ZQA 5			
6CW 232	6WD 45	6ZBT 5			
6LM 205	6JA 41	6ZER 5			
	6WB 39				

Open

VK6RU 1575	VK6HD 161	VK6CR 31
6MA 1265	6WA 257	6LC 15
6AI 563	6EZ 52	

C.W.

VK6WT 329	VK6EU 141	VK6DW 25
6BQ 324	6PY 101	

Receiving

Bradshaw, L6110	.....	730	Points
M. Boema, L6112	.....	583	"
A. Wallace, L6087	.....	496	"

TASMANIA

Points	Phone	Points	Phone	Points	Phone
VK7JV 1013	VK7PS 123	VK7MK 22			
7FM 748	7AB 85	7AX 21			
7RR 561	7IL 94	7NZ 20			
7AK/P 457	7VK 80	7RK 18			
7RC 397	7EJ 73	7ZJG 16			
7MS 344	7PF 73	7MR 14			
7UX/P 266	7SF 70	7ZGJ 13			
7LS 262	7GW 57	7BS 10			
7BM 213	7MT 57	7ZAS 10			
7MX 201	7TR 50	7KH/P 7			
7KK 185	7RM 32	7ZNR 7			
7TB 139	7ZIF 29	1ZPB/7 7			
7BJ 123	7CF 24	7ZWX 7			
	7ZWK 24				

Open

VK7KJ 1127	VK7AL 229	VK7SL 7 54
7KB 647	7TB 216	7LZ 45
7ZZ 279	7OK 182	7KS 12
	7MZ 139	

C.W.

VK7CH 328	VK7RY 103	VK7JB 18
7LJ 255	7OM 71	7YL 8
	7GB 46	

NORTHERN TERRITORY

Phone	Open
VK8DI 594 Pts.	Nil
8ZQ 75	
8AJ 63	C.W.
8JS 28	VK8HA 145 Pts.

TERRITORIES—VK9

To VK4—	Phone	Open
	VK9WD 1344 Pts.	Nil
	9BK 1029	
	9KA 577	C.W.
	9GA 339	Nil
	9BS 164	
	9BS 41	

To VK6—	Phone	Open
	VK6DR 689 Pts.	328 Pts.
	6XX 595	C.W.
	6XX 114	Nil

ANTARCTICA

Phone	Open
VK0MX 348 Pts.	VK0CC 372 Pts.
0JM 328	
0IN 132	C.W.
	Nil

LATE LOGS

VK5 6BE, 6RD, 6SR, 6VE, 6XY, 6ZCD, 6DM;
S.W.L. L. Berlioth.

CHECK LOGS

VK5 3ET, 3AB, 4RC, 4TC.

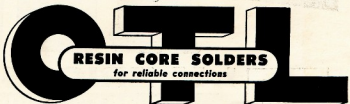
NEW ZEALAND

Phone	Open
ZLIAKY 731 Pts.	ZLBN 750 Pts.
1AAS 725	1OB 81
1ACL 531	3ABC 427
1ARO 384	4CA 475
1AGO 380	
2AH 681	C.W.
2ACP 492	Nil
2OJ 438	
3FM 237	Receiving
	ZL149 639 Pts.

Check Logs: ZLICK, ZL2AWH, and ZLIAKB.

Some Kiwi comments: "Look forward to next year's contest." "Got a big kick out of it, as did all the ZLs I spoke to, and will be in boots and all next year." "... in the future we will see more ZLs taking part..." "A good contest... Very friendly atmosphere throughout the test—a change from the rat-race."

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Bandpass Filter at 455 KHz.
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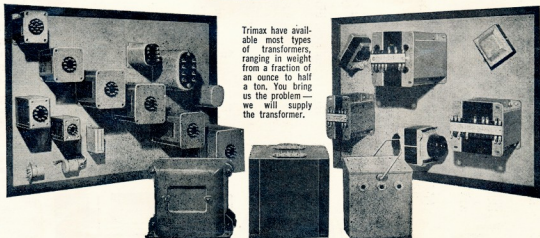
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L.M. 51



KEY SECTION

The Wireless Institute of Australia is pleased to invite Australian Amateurs interested in the use of Morse for communication. The aims of the Key Section and qualifications for membership are as follows:

1. The Key Section of the W.I.A. is an association of Australian Amateurs interested in the use of Morse for communication.
2. Membership is open to any Amateur who holds a VK call sign; other interested persons may be admitted as associates.
3. Amateurs may become members by applying to the Key Section; applicants may be asked to provide proof that they satisfy the conditions for membership.
4. For the purpose of assessing membership of the Key Section, the following conditions define a contact with another Amateur station:
 - (1) The communication must be by A1 or A2 mode by both stations.
 - (2) The contact must last at least 15 min.

- (3) The speed of sending is not a condition of these rules.
- (4) Contacts made during contests are not admissible.
- (5) Contacts made before 11st January, 1971, are not admissible.
- (6) Any one call sign may be used only once in assessing scores.
5. Membership is open to Amateurs who communicate at least 50 points by the rules of paragraph 4, at least 25 of which must arise from contacts with other VK stations.
6. Points are obtained as follows:
 - (1) A contact as defined in paragraph 4 counts one point.
 - (2) If one station in the contact is operating 52 MHz. or above, the contact counts two points; if both stations are operating 52 MHz. or above the contact counts four points.
7. All applications for membership of the Key Section should be sent to: Federal Manager, Key Section, W.I.A., P.O. Box 67, East Melbourne, Vic., 3002. The consideration of applications for membership will be undertaken by Divisional Co-ordinators, who are appointed by Divisional Councils or their nominated deputies. In the event of dispute, the ruling of the Federal Manager will be final.
8. A certificate of membership will be issued.

New members of the Key Section will be listed from time to time in "A.R." It is planned to offer associate membership to overseas Amateurs, and perhaps also to S.W.I.s. These schemes, and others, will be made known when our numbers have grown. I look forward to hearing from you! 73, Deane VK3TX.

STOLEN

From the house garage of VK3BDD, D. Vlasopoulos, 2 Sandgate Ave., Glen Waverley, Vic., 3150 (phone 232-3469) about July were the following:

Iouue IC700T Tx, IC700R Rx, IC700P p.s.u., home-brew linear 1kw. in., digital freq. meter, home-brew nearly complete, Lafayette v.o.m. and t.v. rejuvenator, Philips r.f. f.m. generator, home-brew audio generator.

The matter is under police investigation. If anybody is offered any item from the above list or has any useful knowledge concerning them please contact the police or the operator concerned.



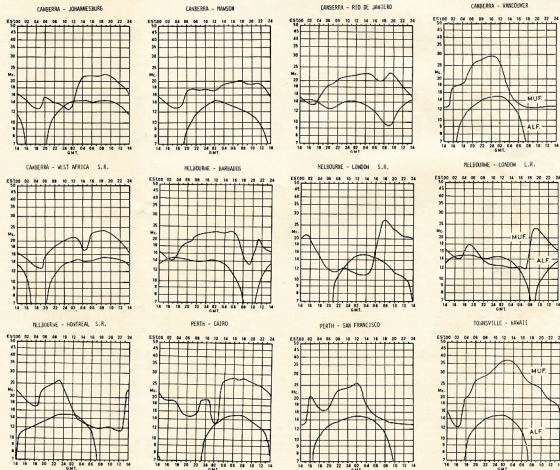
SONNENSCHIN BATTERY RANGE

A new series dryfit battery has been developed by Sonnenschein to meet the need for float service in stationary operation. The new series can be distinguished by the marking dryfit ST, while the constant charge/discharge type is marked dryfit PC.

Further information from the Australian agents, R. H. Cunningham Pty. Ltd., 608 Collins St., Melbourne, Vic., 3000.

PREDICTION CHARTS FOR NOVEMBER 1971

(Prediction Charts by courtesy of Ionospheric Prediction Service)



Sub-Editor: ERIC JAMIESON, VK5LP
 Forrester, South Australia, 5233.
 Closing date for copy 30th of month.
 All Times E.S.T.

AMATEUR BAND BEACONS

VK9	32.325	VK6M, Macarson.
	32.032	VK0TM, Macquarie Island.
	53.544	VK0PH, Casey.
VK2	32.220	VK2IL, Crows Nest, Sydney.
VK1	144.700	ZL1VHF, Auckland.
VK4	144.380	VK4VVF, 107m, w. of Brisbane.
VK3	32.000	VK3VF, Mt. Lofty.
	144.000	VK3VF, Mt. Lofty.
VK5	32.006	VK5VF, Bickley, Perth.
	32.900	VK6TS, Carnarvon.
	144.500	VK6VE, Mt. Barker.
	145.010	VK6VF, Bickley.
VK7	144.900	VK7VF, Devonport.
	144.600	VK3XL, Christmas Island.
ZL1	145.100	ZL1VHF, Auckland.
ZL2	145.200	ZL2VHF, Wellington.
ZL3	145.200	ZL3VHF, Christchurch.
JA	51.997	J1KGY, Japan.
ZK	50.100	ZK1AA, Cook Island.
KH6	30.101	KH6EQI, Hawaii.
	30.015	KH6RU, Hawaii.
W	30.091	WBKAP, U.S.A.
HL	50.100	HL9WI, South Korea.

From the newsletter of the Geelong Amateur Radio and T.V. Club comes advice that Keith VK6MX is running a new c.w. beacon with 20 seconds of carrier each minute on 52.352. This will be in operation until a permanent high powered beacon is installed in VK0 in March 1972. Following this and the other two beacons listed are able to remain fully operational throughout the coming DX season, may be we will see 6 metre contacts between Australia and the Antarctic regions for the first time.

Mike VK2II has written advising that a temporary attended beacon will be running from his QTH in Sydney for the coming DX season. The beacon will run approximately 10 watts of c.w. on a 5.0 MHz antenna using his own call sign VK2IL. Frequency 52.2 MHz, with the following sequence: 30 seconds carrier, pause, ident, 7 w.p.m. VK2II. The beacon will be running 20 seconds carrier and so on. The proposed turn-on date is 1st Nov., so the beacon is therefore added to the current list of beacons. The beacon will be running during the evenings 1700 to 2200 or 2300 hours and during week-ends. It is hoped this beacon will fill the gap until there is something operating from Dural, probably next year. Thanks for the advice Mike, this is a start in the right direction from VK2 and I know there will be set-up at Dural, with particular thoughts for the 2 metre beacon planned.

Talking with Bob VK6BE who lives near Albany, on 80 ft. metres recently, I was pleased to learn there is every indication of increased activity from the Albany area this DX season. Bob has a 21 ft. crank-up tower and is installing a 4 ft. on 2 metres at 57 ft. and 4 ft. on 4 ft. at 47 ft. Others getting in on the v.h.f. act from there include VK2CD, 62X, 6RD, 6ZCZ and 6KJ. Bob VK6BE also has plans for 422 MHz, and if these come into being will create a lot of interest eastwards. Bob also mentioned the likelihood of a 6 m. beacon from Albany soon on 52.955 with the call sign of VK6VE. I will try and have this confirmed for inclusion in next month's listings.

Items of interest seem to get to me by long roundabout methods at times, but from the pages of "The Victorian VHFer" comes news that Wally VK6WG in Norseman and Rollo VK6JG in Perth have been conducting 2 m. propagation experiments with Rollo beaming Perth to Norseman (note: this is close to a Perth-Melbourne heading) on 144 MHz. These are conducted daily at 0645 WAST (0645 EAST) using 80 m. as a liaison frequency. Verification has been achieved on two occasions, the path is approximately 380 miles over mostly flat terrain, but with Perth itself in the shadow of the 1,000 ft. Darling Scarp. Wally can hear the Barker beacon, VK4K, over a slightly shorter path, most mornings.

Also from the same publication comes news that David VK3QV, Federal Vice-President, has advised that the following new Victorian records have been ratified:

432 MHz:	VK3ZY0 to VK3ZDY, 1/2/70, 406.4 miles.
576 MHz:	VK3AOT/3 to VK3KB/3, 11/4/71, 147.5 miles.

The VK5 Federal Council, Geoff VK3TY, announced at a recent W.A.L.A. meeting in Adelaide that as a result of the C.O. Conference the allocation to the Amateur Service of 21.600 to 22.000 GHz. is to be withdrawn, and a new 54 GHz. band substituted. The new allocation is an exclusive allocation, and 24.050 to 24.250 GHz. a shared allocation with the radio-location service, which is the primary service. There will be a gain with the new band too, in that the propagation characteristics of the new band are considered to be more favourable as it is a wave of a much of atmospheric attenuation which occurs at 22 GHz. due to absorption by water molecules. Whilst on the subject of the v.h.f. band, it is probable that the record still stands for a 21 GHz. two-way contact of 27 miles between W2UKI-2 and W2WVW-2 on 24/10/64. For those who wish to go higher, a car can try and better 23 miles for above 30 GHz. set on 9/2/69 by W6FUV, F and W6ICJ/6.

During the month a copy of "QRM" the bulletin of the Northern Zone of the "QRM", has arrived on my desk. It appears the editor is John VK7JV, and I note with interest in its pages that a committee is investigating the setting up of beacons for 6 and 2 m., presumably in the Launceston area. Perhaps we shall hear more of this as time progresses. Membership of the Northern Zone increased from 18 last year to 69 this year, which augurs well for the future. Thank you for including me on the mailing list, and I hope to see items which are of general interest from its pages from time to time.

It is noted with interest that there is to be another South-East Radio Group Convention at Mt. Gambier next year. Garry VK5JR, the S.E.R.G. publicity officer advises the Convention will be held in Mt. Gambier on the long week-end of 10th, 11th and 12th June, 1972. As a major sporting carnival will also be held in Mt. Gambier over this week-end, the S.E.R.G. has booked an entire motel. If you are likely to be going to the Convention and require accommodation it may well pay you to make your booking as early as possible.

The V.h.f. Rally on 19th Sept. at the Gembrook Sports Ground was apparently a great success according to Bob VK3AG who was mentioning about 90 Amateurs were present amongst the 200 people who joined in the occasion.

The VK5s made the journey. However, the same good conditions certainly did not prevail for the V.h.f. Field Day on 26th Sept., a wetter day. The remarks that conditions were "lousy", but this did not deter 14 stations from going out portable. However, due to the conditions no stations were heard here at my QTH, where it rained all day!

Entries are invited for inclusion in the events calendar other than of a purely local nature. Correspondents are again invited to send in the Jan. issue is required by 25th Nov., five days earlier than usual, due to the Christmas and New Year holiday period.

The DX season for v.h.f. fast approaches and it seems very likely we will see a continued increase in the number of stations, particularly on 6 m. using the same efforts will be made by everyone to work these stations along with the a.m. stations. 6 m. is easy to tune of course and suited to many of the older receivers in use on v.h.f. However, a little thought and work to arrange to improve the overall quality of the transmissions for greater pleasure when listening. A regulated voltage supply for the mixer and oscillator stage, and the b.f.o., will work wonders in many cases. There are many simple b.f.o. circuits, both valve and transistor, which can be added to existing rx's, although a product detector will be better. However, the large signal level variations found on v.h.f. However, don't overlook the common b.f.o.; if you have this you will not need to give a CQ call for a.m. stations only!

Remember also that many of the a.s.b. stations will be operating transceive, so it will be necessary for you to call them on their own frequency. It would be an advantage no doubt for a.s.b. stations in particular to advise when calling whether they are on transceive. Likewise, it is a good idea for all stations to advise when calling that they will listen on their own frequency before tuning to transceive. It may be a station using transceive there, calling you.

This all means that ultimately v.h.f. operation will follow the pattern of h.f. where almost without exception stations transmit and receive on the same frequency whether they are using transceivers or not. a.s.b. and a.m. stations alike do this, and the practice is already growing on v.h.f. One advantage operators should consider is that the time of operation tends to keep the frequency clear for the two or more stations operating. I wonder how many times you have come back after an over to find another station blocking out the one

you were working just because nothing was being transmitted at the time he chose the frequency.

And finally, a word about 2 m. Evidence suggests that possibly this year, and certainly next year, for a period of a year or two, we can expect better contacts over longer distances on two metres. It was around 1961 to 1964 approximately that the propagation improved to permit interstate contacts of 1,000 miles and more, including the record breaking contacts between ZL and VK5. This will occur again, so it will pay all to have 2 m. gear going well, and capable of listening on two while transmitting six. Should you be lucky enough to make the grade and work Brisbane, Sydney or somewhere else, please be fair and make the contact brief, and clear the frequency for someone else. As anyone knows who has worked 2 m. DX that of that nature, it generally does not last long, and someone who is long-winded can spoil the chances of many. It's now in your power!

The thought for the month: "A lot of today's frustration is caused by a surplus of simple answers, coupled with a tremendous shortage of simple problems." Until next month, 73, Eric VK5LP. The Voice in the Hills.

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By H. F. EVERICK
C/o. P.O. Box 36, East Melbourne, Vic. 3002
(Times are in GMT.)

News seems scarce this month. That is to say, news which is not out of date by the time you read this. Being winter in the Northern Hemisphere, the DX-ers are not, and certainly nobody would have a shot at, say, Rockall at this season. But where are the Southern Hemisphere DX-ers?

Perhaps then, this may be a good time to look ahead. We have become so accustomed to thinking about the bands from 1.8 to 28 MHz as DX bands (possibly adding 32 MHz now and again that they are known simply as the DX-bands. No need for any explanations. Everyone knows what you mean.

In a few years we may have to change our ideas. Satellites are bound to come along before this decade is finished which will cause us to scrap the term "DX bands" because all our Amateur bands may become DX bands. The development of repeaters in the U.S.A., here and elsewhere has already extended to satellites. How can contact satellites in geophysical orbits carrying repeaters on v.h.f.?

Will this mean the scrapping of DX certificates as we know them? Will it become easier and more reliable to work into Kansas or Kidderminster on a v.h.f. pipe-line rather than through the natural terrestrial medium? Will we use now?—when we can get through? I suppose, though, the amount of QRM is bound to be the same, and the number of channels available there are hundreds of channels available or something else is done.

It is always disconcerting when you talk with a friend just up the street on a "dead" DX band and suddenly become aware of a breaker 2000 miles away. How much more disconcerting it will be if you find a telephone-type contact on metres from your car on the way home from work and become aware of a breaker motoring off to his home in London. Similar thoughts have been aired in the past but today the reality seems closer. What triggered my thoughts were the two articles in the magazine and the article in the Victorian VHFer by VK3AFW.

If all that does come to pass, the days of prediction charts might become numbered. Looking through the charts for a few years, on any other day was an interesting exercise in speculating how they will work out in practice.

For the short path to London the peak from Perth extends almost to 30 MHz, as against 28 MHz from Melbourne and 26 MHz from Canberra; however, the Canberra peak is somewhat higher than the other two. Perth's peak is half an hour later than the other two. The MUF dips down into the ALF for all three, but only down to 12 MHz, for Perth as opposed to 11 for Melbourne and 10 for Canberra. Once again, all are at about the same time. However, for Perth the ALF is a much broader band than the other two. Perth's ALF is 12 MHz, opening extends from 1430 to 2300z, for Melbourne from 1330 to 2100z, and for Canberra from 1330 to 2030z. The ALF peaks rise to more than 30 MHz, and for Perth about 35 MHz, but for Perth the peak is two hours later than the other two.

Looking in the other direction, it would pay to live on the East coast to work into San Francisco. In Canberra the MUF peaks to 30 MHz, and Melbourne 27 MHz, both at 1500z, but from Perth the MUF reaches over 25 MHz at 0900z. The ALF curves are more interesting though. From Canberra the ALF never drops below 10 MHz, and for Perth it is a little above 14 MHz, whereas for Melbourne it is a dose rising to 15 MHz at 2430z with a base extending from 1630 to 2100z. The ALF for Perth rises to 15 MHz, but at 0300z with its base extending from 1645-0915z. In different terms, the 14 MHz band would be open from 1500 to 1600z, 1600-0900z and 1500-2100z from Melbourne 0400-0900z and 1500-2100z, and from Canberra 0300-0900z and 1500-2100z. Melbourne 0300-1630z, and Canberra 0715-1630z.

Although comparable tables were not available, going northwards of course gives greater MUF peaks for example, the MUF at Townsville to Hawaii peaks to nearly 36 MHz, at 2200z, whereas for Adelaide it reaches only 28 MHz.

The long path to London is a complex interweaving of MUF and ALF curves for all three places. However, it would seem impossible to work Perth, whereas from Melbourne it would be theoretically possible from 0800-0915z and from

Canberra half an hour earlier. For closer N-S paths, the possibilities of 28 MHz DX are better from Perth, particularly on 1F modes as opposed to 2F, but these are more obvious comments.

It was always very interesting to see the prediction charts used in the VK2 Bulletin, as organised by Frank Hine, and by extension to see that there must be a method to disseminate the information. For example, the path to Nairobi for November could be shown thus (local times)—

21 MHz.—
From Perth: 5 1600 + 4
Melbourne: —4 1700 + 4
Canberra: —4 1700 + 4
14 MHz.—
From Perth: 5 0000 + 4½, —2½ 0800 + 3
Melbourne: —3 0000 + 3½, —2½ 0830 + 3
Canberra: —4 0030 + 3, —3 0800 + 3
7 MHz.—
From Perth: —4½ 0300 + 4½
Melbourne: —3½ 0400 + 3½
Canberra: —3½ 0400 + 3½
—3 0400 + 2½

Because the ALF curves often run more or less vertical below 7 MHz, there is a significant little difference between the 7 and 3.5 MHz. Bands—possibly half an hour each side of the centre time for 3.5 as against 7 MHz. In other words, if the central opening time is taken for 2.5 MHz, the 7 MHz opening would last half an hour longer each side of the central time.

Looking at the Prediction Charts in September "A.R." illustrates a number of points on conventional notations. Take the 14 MHz band to London long path as an example. The MUF reaches peaks about 2100z and 2800z, both possessing sharp rise times with slow fall times. If a numerical notation for 14 MHz, this would be shown as minus 2 2100z plus 5 and minus 1 0800z plus 5½. For the short path the notation would read minus 4½ 0900z plus 9½.

However, looking at the same two charts for 7 MHz openings we get minus 4½ 0700z plus 4½ and minus 4½ 1900z plus 5½ respectively. The shorter plus time from "centre" indicates a more vertical ALF curve and hence less predictable.

It is an unfortunate fact of life today that prediction charts in their present form are becoming more and more costly to reproduce. The writer holds the view that prediction charts of this kind are easier and quicker to comprehend than those in any other form so far produced in other magazines. However, these charts are not perfect. The writer does not know if the curves hold good for most of the month or only a part, leaving aside, of course, the other factors such as magnetic storms. A sharply rising or falling curve on the chart and a cross-crossing of the MUF-ALF curves would appear to indicate a period in the same way that peaks and troughs ordinarily change shape rather more rapidly than their actual heights or depths.

If we are compelled to consider a method of numerical notation, the examples quoted might be useful for consideration by DXers.

160 Metres. VK3APF writes with details of the 160 mhz annual TransPacific Tests received from W1BB (also asks about the Contest Calendar which is re-introduced in this issue). In previous years there have been plenty of stations taking for contacts despite the QRM and many contacts were made even on seemingly impossible nights.

The drill is that W.V.E stations call CQ DX Test on 1.8 MHz and DXers call CQ W.V.E. The five-minute periods from five minutes past the hour. The frequencies in kHz are: 1800-1860 for VK, 1800-1810 for W.V.E, 1807½-1912½ for JA, JOK (approx.) for ZL and 1975-2000 for KH6; the times are 1330z (or earlier) to 1600z and the activity dates are Nov. 6, 20; Dec. 4 and 12, 1971.

JAs will be looking for DX from 0730z to 1000z on the same days. Reports of QSOs are requested and should be sent direct to W1BB, 36 Pleasant St., Waltham, Mass. 02154, U.S.A., for inclusion in his 160 mhz news bulletin. Last month this column published details of W1HGT's activity periods.

6 Metres. From late Nov. to end of Jan., VK6PG on 52.90 MHz. from Casey and VK6MX on 52.525 from Mawson/Wilkes will be looking (especially on Christmas Eve) for contacts between 0500z and 0700z and 0800z to 1000z. Call signs will be sent in short bursts followed by listening.

Several VK2BGG of Wauchope in an interesting letter, received too late for October "A.R.", gives details of contacts with 8J1WJ, the Boy Scouts' 13th World Jamboree Station at Asagiri Island in Japan. He is reportedly the first 2K worked by the station and his son, Seiji, happened to be there at the time. A good article appeared in the Morning Shire Gazette.

I wonder how the Scout Jamboree on the Air will go this year—here again, details arrived too late for inclusion in last month's "A.R." Report. VK4KA as usual came with much material for this column, a QSO with ETZUW on 1410 KHz. c.w. early in September. This station operated from Zugar is, part of the Farasan Islands, and was recognised by A.R.R.L. from 1st Aug. 1971 as a new DXCC country listing under the names Abu Ali and Jabel At Tar Islands ("QST" Aug. '71).

These seem to be the only new DXCCs. July "A.R." quoted the QSL manager of Aido as 11LJ, but Murray quotes 11JL from another source. Perhaps somebody knows the answers to these. In the same issue, a note about 2406, Dharan on s.s.b. This is a "club" station with a number of American oilfield and other operators, and has been active for years. Murray's lists also include many goodies and 179LNC (c.w. 7 MHz), FR7AE/T (s.s.b. 14 MHz), G3YUW (same), G3YUW (c.w. 14; presumably mobile), 10E7RCA (c.w. 14) and 0B4VE (c.w. 7; Lima, Peru).

Murray lists everyone else in complaining about the decrease of power into 10 metres and listed 40 and 20 as "improving". He also mentions the QRM from non-Amateur stations, particularly on 10 MHz, but from another source it is known that it is very active on the Intruder Watch and reporting. This is splendid work requiring many operators, much time and great patience. Those who use the word "intruder" in their inane chatter and puerile remarks could find a most useful panacea for boredom by listing intruders on 10 metres, are extremely active on 40 and 80 metres.

Darlene (ex 3BBDK) may operate from rarer European DX-spots in Nov. such as 3A.

"Magazine" DXers mention a possible activation of VR3 Fanning (c.w. 14) and 2BVDW and that BV2A is the only present activity in Taiwan (xrl. controlled 14023 around 1200z).

"50 MHz." Radio "ZS" of July mentions several Eastern Cape stations are preparing for 1.1-1.3 on 50 MHz: ZS2s OW, CQ, BZ, GS, GE and DD.

On Contest Results: Am glad to correct any erroneous impressions. AX2APK listed in Sept. as being active on 10 MHz, but was not active on Oceania on 14 MHz. This is an all time record. In the "CQ" W.W. DX Contest ("CQ" Oct. 71) VK3ADY was listed as the all bands single operator, phone work record holder (1967), VK3KO on 1.8, VK3NO on 7, VK3APJ on 14 and VK6UG on 28 MHz, all single op., single band, c.w. world record holders with AX2BKM multi-op., single transmitter, multi-bands, record holder.

In the S.S. DX 1971 N.F.D., VK6I/P gained 2nd position in overseas check logs giving G stations 384 points ("R.C." Sept.).

Again from the "CQ" of Oct., it is observed that the QRG second place improvement in the "CQ" DX Award (c.w. Cert. 57) and joins the CW WPX Honour Roll with 809 prefixes. VK3KJ moved from 1000z to 1100z, and VK3AMK Cert. 861 in WAZ 55B ("CQ" July).

Contest Calendar:
Nov. 6/7—R.S.G.B. 2 MHz. Phone DX.
Nov. 13/14—R.S.G.B. (2nd) 1.8 MHz. DX

Nov. 27/28—"CQ" W.W. DX—c.w.
Dec. 11/12—Spanish c.w.
Dec. 11-Jan. 23—Ross Hull Memorial V.h.f. Contest.
Feb. 12/13—John Moyle N.F.D.

Late News.—From Charles VK4UC via Paddy 457BP on SEA net 14329 at 1200z daily comes news of a possible activation of 1U1AA on 1.8 MHz. Rad. Club C.C. Combedes, resulting from John's VETR/UX combination; believed approved by A.R.R.L. for DXCC. Also that the ZDS boys now have the prefix 3D06 (called 3D0AX, formerly ZDSX). Charles' other data is in the QSL column but he also mentions 4W1AF on 1.8 MHz, and 4W200 on 1.8 MHz, and 4W200 of the Sunday DX group net by Nick YV4U, from first Sunday in Nov. on 14170 from 1130z. There is also the possibility of a new prefix for

Don Grantley will be writing the DX notes in future and please forward any copy to him at P.O. Box 222, Penrith, N.S.W., 2750.

JULY 1971

VK3ZXB—M. H. Adnams, Station: 6 Saer Crt.,
Mildura; Postal: P.O. Box 246, Mildura,
3500.
VK4QD—J. P. Lindsay, Station: Repert Crt.,
Yarrapunga, Townsville, 4510; Postal:
P.O. Box 1251, Townsville, 4810.
VK4SO—M. Eumson, Station: 64 Peel St., South
Brisbane, 4001; Postal: Box 1513, G.P.O.,
Brisbane, 4001.
VK4ZIC—I. T. Chappel, D'agular, 4513.
VK4ZJE—E. E. Burnham, Burnham St., Forest
Hill, 5060.
VK4ZSK—S. Kumar, 37 Lowerson St., Lut-
wyche, 4630.
VK5OW—B. E. Beckman, 5/26 Delprat Tce.,
Wynyard, 5000.
VK5UT—F. F. Allen, 5/32 Seaview Rd., West
Beach, 5024.
VK5XFE—J. H. Russell, 46 Wainwright St.,
Wynyard, 5060.
VK5ZJB—J. F. Bothwell, P.O. Box 123, Ceduna,
5090.
VK5ZKE—J. L. Jones, 3/9 Harvey St., Nails-
worth, 5083.
VK5ZLM—L. G. Moffat, 1 Mackinnon Crt., North
Adelaide, 5061.
VK6CO—C. C. Crowe, 23 Rosser St., Cottesloe,
6011.
VK6UR—S. J. Ryan, 23 Ballarat St., Morley,
6062.
VK6NE—C. N. Neuhronner, 62 Williamson
Ave., Belmont, 6104.
VK6RH—R. H. Cooke, House 684, Tom Price,
6731.
VK7ZO—L. N. Smith, "Belle Brae," Lileah,
7230.
VK8DO—D. O. White, 3/287 Wellington Pde.,
8000.
VK9BC—N. Boland, P.O. Box 5099, Port Mores-
by, P.
VK9HB—H. Buehler, C/o Gulf Fisheries N.G.,
P.O. Box 690, Port Moresby, P.
VK9JV—J. Vogel, P.O. Box 3155, Port Mores-
by, P.
VK9ZFD—F. Dowse, P.O. Box 131, Rabaul,

ALTERATIONS

VK5ZWV/T.W. A. Watkins, 244 Shepherds
Hill Rd., Bellevue Heights, 5630.
VK6BS—B. H. Smith, Postal: P.O. Box 190,
Wongah.
VK6HS—H. B. Simpson, 3 Vernallee Way,
Leeswood, 6026.
VK6ZG—C. A. Graham, 15 Webster St., Mt.
Barker, 6324.
VK6ZF—D. V. Robinson, 25 Chelsfield St.,
Gosnell.
VK6ZG—W. R. McGhie, 39 Edgeware Rd.,
St. Lucia, 6152.
VK7BF—M. J. Bennett, Addition of T.
VK7LY/T. L. Jenner (Mrs.), Addition of T.
VK7X—M. B. Muir, 5 Tingira Rd., Blackmans
Bay.
VK7ZMS—M. G. Sallier, Low Head Rd., George
Town, 7252.
VK7ZNF—R. F. Grant, Old Main Rd., Perth.

CANCELLATIONS

VK1ZKL—L. G. Moffat. Now VK5ZLM.
VK1ZMU—A. W. Mothersole. Now VK2AEM.
VK2PCF—P. J. Carter. Now VK2TR/T.
VK2PZ—J. Now VK2PZ.
VK3FB—A. W. J. Fussell. Not renewed.
VK3SH—M. K. Bunn. Not renewed.
VK3TR/T—J. P. McCrohan. Not renewed.
VK3V—J. Secor. Not renewed.
VK3XL—E. S. Coxall. Not renewed.
VK3ZZ—W. L. Stevens. Not renewed.
VK4JTH—H. Jupp. Not renewed.
VK4JTB—J. E. Burt. Not renewed.
VK4AMM—A. C. Edwards. Not renewed.
VK4ASW—J. F. Ryan. Not renewed.
VK4B—J. E. Burt. Not renewed.
VK4BDS—R. H. Wells. Now VK3SF.
VK4BHS—U. H. Shaw. Now VK3BF.
VK4YDG—J. G. Gill. Now VK3AXO.
VK4Z—J. E. Burt. Not renewed.
VK4ZJD—J. C. Lively. Not renewed.
VK4ZMZ—G. Aberline. Not renewed.
VK4ZVD—R. P. J. Monola. Not renewed.
VK4ZV—E. E. E. Not renewed.
VK4FS—R. F. Lingham. Not renewed.
VK4MC—A. MacPherson. Not renewed.
VK4MD—J. E. Burt. Not renewed.
VK4ZPL/T—P. J. Lindsay. Now VK4QD/T.
VK5BK—J. Grivell. Deceased.
VK5EC—G. E. Cameron. Not renewed.
VK5EJ—W. B. Johnson. Not renewed.
VK5ZA—E. J. Whittington. Not renewed.
VK5ZBS—G. Downing. Deceased.
VK5ZJO—J. C. Willoughby. Not renewed.
VK5ZD—J. C. Smith. Transferred to Port
Moresby.
VK6AU—M. G. Burleigh. Transferred to Tas.
Manus Island. Not renewed.
VK6XC—W. C. Siri. Deceased.
VK6ZB—R. L. Holman. Not renewed.
VK6ZBN—A. R. May. Not renewed.
VK6ZBN—A. Siri. Not renewed.
VKRUG—Govt. Social Club. Not renewed.
VK9DT—A. T. C. Hansson. Not renewed.
VK9DJ—F. E. Forley. Transferred to Qld.
VK9JJ—J. Schell. (Rev.). Transferred to
Manus Island.
VK9SR—Sopas Radio Club. Not renewed.
VK9SRS—Prof. S. R. S. Not renewed.
VK9ZBF—D. F. Francis. Not renewed.

LICENSED AMATEURS IN VK

	JULY 1971			Grand Total
	Full	Lirn.	Total	
VK0	11	1	12	
VK1	86	30	116	
VK2	1455	496	1951	
VK3	1307	858	1975	
VK4	522	206	728	
VK5	519	227	746	
VK6	367	135	502	
VK7	156	65	222	
VK8	37	12	49	
VK9	86	11	97	
	<u>4526</u>	<u>1852</u>	<u>6378</u>	

AUSTRALIS

Further to the report on page 17 of June 1968, the complete list of signs of the Amateurs who worked through the balloon package is shown below. These call signs were taken from the tapes of all four flights and were recorded by Jim VK2CZE. It is possible that some of the call signs were not the indication of the balloon. Special thanks go to Jim for his tremendous assistance. The VK1 and VK2s were all on flight No. 4 only.

VK1VE
VK1 ZHHM, 22VI/Mobile.
VK1 3AFW, 3AGF, 3ASV, 3AXC, 3CCX, 3KV.
3YDB, 3YFJ, 3YEK, 3ZBV, 3ZDN, 3ZDV, 3ZKW, 3ZPL, 3ZSL.

VK2s
5KH, 5ZL, 5DK, 5NZ, 5QZ, 5ZDV, 5ZDY, 5ZK, 5ZKH, 5ZL, 5ZMW, 5ZS, 5ZSL, 5ZTH.

CORRESPONDENCE:

NOVICE LICENSING

Editor "A.R." Dear Sir,

I feel that the "pearls of wisdom" of VK3RN ("A.R." July '71) and the comments of his supervisor, VK4DH ("A.R." Sept. '71) concerning novice licences should not go unchallenged.

It would almost appear from the remarks of these two Amateurs that they were not members of Amateur Radio to be like an exclusive old gentlemen's club. It is very fortunate for them that they are already members of this exclusive club, but associated with it is the fact that some of us (brilliant matriculation physics students excepted) that the doors are kept a little tighter closed than some would like to know.

What about the ordinary, keen, prospective Radio Amateur, Mr. Morgan? Why not let him in, via a lower grade licence which he could hold for a limited time? And, if it would seem to you to be such an irreversible process to have a Novice licence, why not agree to have some measure put into operation on a trial basis as has been suggested by VK3WJ and VK4SS? Would not this prove whether the Novice licence had merit or not?

Some considerable comment has been made about the 160 metre band as a possible training ground for Novices. As any Amateur in N.S.W. must agree, the portion above 1820 kilohertz is useless for long distance work because of the severe interference from the 160m Lorán station in the Philippines. And in the daytime, when perhaps Novices could try coast-to-coast contact, band would be a little ideal, with interference to other stations as remote as interstate 2 metre contacts.

The radio clubs in this state are always preparing prospective Radio Amateurs for the A.O.C.P. Many of the students find great difficulty in passing the examination at the first attempt. Many of them, again, and again to gain the qualification which would get them on the air. Some become disillusioned by the complexity of the questions and the very difficult pass mark of 70 per cent. Some of these candidates are over 40. Few of them are brilliant students. But all of them have one aim in common. They would like to gain their Amateur licence and take part in a rewarding and absorbing hobby.

Only those who conduct classes in the many radio clubs can fully realise the frustrations of those who just can't make it. In 1939, was the technical standard of the licence examination of the same level as it is in 1971? Perhaps when you went for your licence Mr. Morgan things were a bit easier. Perhaps on those days they had a syllabus in Leaving certificate physics which encompassed the whole of the course for the A.O.C.P. Perhaps they did then Mr. Morgan; but they don't do so now. Even teacher members of this club have to study additional material to gain their A.O.C.P. so how your Matriculation students could accomplish this feat without any preparation whatsoever is a mystery to many of our members.

Surveys conducted by this club indicate that the great majority of members, including those who are already Radio Amateurs, support the report on Novice licensing as put forward at the Easter Convention. Our membership is quite large by local standards, over 100, but as I pointed out before, many of us are still on the outside. We would benefit by the introduction of a Novice licence, and so would the Amateur Service in Australia. The Amateur population would be increased, despite what Mr. Higginbotham suggests, and, by including a Morse telegraphy requirement, as has been suggested, we would hope that the increase would be one of quality also.

I trust that all thinking Radio Amateurs will read the report on Novice licensing prepared under the chairmanship of Mr. Rex Black. I hope that Amateurs will make constructive suggestions as to how the recommendations in the report may be amended, and I certainly hope that the Institute will see fit to accept the report its support and that soon we may have a Novice licence. We'd like to partake in Amateur Radio just as much as all your other correspondents, even Mr. Higginbotham and Mr. Morgan.

—E. C. Brockbank, Secretary,
Westlakes Radio Club.

Editor "A.R." Dear Sir,

I read with interest a letter written by Mr. Ivor Morgan concerning Novice licences in the Sept. issue. I am a sixth form student at Boroogah High School, and I am studying science at the First level. Without any preparation whatsoever Mr. Morgan? You must be joking!

—R. A. Day, VK2BBI.

Editor "A.R." Dear Sir,

I have read with interest Mr. Morgan's letter as published in the Sept. issue of "A.R." I consider his statement that a boy doing physics at Matriculation level could pass the A.O.L.C.P. without any preparation whatsoever to be rather irresponsible.

Speaking as a high school teacher of science, I am quite convinced that your correspondent has been misled. The electronics content in the high school physics course constitutes a minute fraction of the mass of knowledge needed to pass the A.O.L.C.P.

The fact that some high school boys can pass the Amateur examination in radio theory is most likely due to considerable effort on the part of the candidate outside the classroom.

—F. R. Overvield, VK2ZFZ,
Science Dept., Broadmeadow H.S.

Editor "A.R." Dear Sir,

Having read the latest correspondence on the important matter of Novice licensing, I should like to offer a few comments from the point of view of an A.O.C.P. correspondence student, associate member No. 3623 of the W.I.A. and a would-be Amateur.

Your first correspondent, Mr. Morgan, derides the suggestion of a lower level Amateur licence and quotes the cases of boys who have passed the P.M.G. Amateur examination on the basis of school physics alone "without any preparation whatsoever". This statement, of course, is designed to stress the opinion which he presumably holds, that the A.O.C.P. is within the capacities of anyone with two arms and two legs. I do not know what occupation Mr. Morgan follows and I regret with respect his 40 years of Amateur experience, but I emphatically

vehemently deny that any school physics course covers the theory section of the prescribed A.O.C.P. syllabus. Such exaggerated statements do nothing to bolster the strength of the anti-Novice cause, which this correspondent is apparently trying to do.

I can assure you and him and anyone else that I should welcome a Novice licence if it could offer me a quicker means of getting on the air to improve my operating skills and give me experience which the present system denies me. In my present location I am remote from other licensing Amateurs and radio clubs, and I should have to rely on advice from well disposed Amateur friends and from reference books on the subject. I can see a lot of merit in the position whereby I should be permitted to start in a small way with a 10-watt transmitter, simple antennae system, and crystal control as set down in the Novice proposals. The Morse code requirement is one which I am quite happy to observe, as I regard this as a traditional and valuable means of communication. I would not be at all affronted at the idea of being an Associate member of the Institute rather than a Full member, and could well accept the fact that the older and more experienced members would tend to regard me—and the other Novices as "apprentice Amateurs", as indicated in the Novice Committee's report. On the other hand, I should be flattered and pleased if Mr. Morgan and other well disposed Amateurs would accept Novices as Full members because of sharing transmitting privileges. Also, I should be grateful to receive the benefit of their suggestions as to how I could improve my operating methods and my technical knowledge.

I do not work in a job associated with electronics, so I find the A.O.C.P. course quite difficult. The small amount of electricity which I studied in my school science course does not take me very far along the involved study papers which the correspondence course provides. I have considered the system of examining the last few A.O.C.P. question papers, seeing which topics occur repeatedly and preparing "study fashion" a limited number of topics, trusting to luck that seven of them

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would appear in the A.O.C.P. paper which I attempted. I realise that this method would offer a very limited radio knowledge even if it did succeed in narrowly saving the time to per cent. marks awarded. But, if a Novice licence period of operating could be provided, I am certain that the practical work involved in becoming an operator and operating it would give me a far more useful background than a crash course on a limited number of topics. In other words I would be a "better" Amateur operator when I finally passed the A.O.C.P.

Mr. Morgan has stated that "the regulations can be changed in one evening prior to the examination". Having perused the specified handbook, I am quite sure that such a cursory consideration of the rules and regulations of Amateur operating is most undesirable and I am surprised to think that such an experienced Amateur has such an attitude. One would think that the Amateur approach would be towards a long and well-learned preparation on this vital section of Radio Amateur lore. No, Mr. Morgan, when I get on the air it will be with a sound knowledge of regulations—not merely a hasty scanning to pass a fairly simple test.

I must state that the most sensible contributions to the issue have been the letters from Mr. Shawsmith, VK4SS, and Mr. Oburtill, VK3WV, both of whom suggest a trial period of (average) five years. No doubt after this period the Institute and the Y.R.C.S. representatives would consider the success or failure of the experiment and act accordingly. This is a very fair approach to the problem.

—Mick Rodden.

Editor "A.R." Dear Sir,

During this week I received from the Federal Mailing a photostat copy of a letter addressed to you and relating to the subject of Novice licensing. This letter was written by a Mr. Morgan (VK3DH) and followed by a personal letter to him to clarify and discuss various items relating to this allegedly contentious topic. I took the matter to him with reason and friendly in tone and certainly did not warrant the objectionable tenor of his communication. In the event of your reply, Mr. Morgan, in his letter, that you might consider printing mine to him in order that readers may assess the nature and content of his statements.

—R. C. Black, VK2YA.

Editor "A.R." Dear Sir,

Count me in on this entrance exam controversy. I belong to the minority group of genuine Amateurs and Experimenters.

I have had more experience than most with the same exam, having failed it five or six times in a row about six years ago. I could quite easily fail it again a couple of times now. It is loaded in favour of the high school type of student, while the less educated slow-writer, aged, or purely physical workers, are all practically defeated.

Down grading is a step in the right direction provided that it is counter balanced by upgrading at the other end.

If we had up-graded both our entrance exam, and our experimental projects in line with the advances in science, we would now have been providing both technicians and scientists with the computer and laser industries. Instead of this, we have turned our organisation into a network devoted entirely to entertainment and particularly in recent years since commerce has invaded our ranks).

Let us consider this question on a "who gains, who loses" basis.

The "trade" occupies the box seat. In fact for them it will be a real bonanza. The present members will not lose any prestige. That was lost years ago. The experienced ones will be pushed any further off the popular bands. They have already been pushed off.

If we now consider the standard entrants who are to be enticed into our organisation with suitable pleasure hunting bait. The result will be (1) a big increase in the number of pleasure hunters; (2) a proportional increase in the influence of the "trade" in our affairs; (3) the public abandonment of any claim to technicality; (4) the complete loss of the scientific section of our organisation through lack of proportionate numbers.

A glance at our award system accurately illustrates Amateur Radio as it is in 1971. The highest Amateur awards go to those willing to spend the most money to get it.

If the present proposal is adopted the position will be much worse. No brains will be required to enter our ranks. If the entrant has 500 dollars and some nimble fingers, he needs no brains after he has entered either. The highest awards in our Amateur ranks are within his grasp.

This position should be commemorated in pictorial form, either in a badge or a plaque. It could depict nimble fingers twisting a dial

on a background of a 500 dollar note. This could be mounted on the back of a crushed "experimenter", or hung round his neck like a mill-stone. The foreground could contain suitable "awards" artistically draped, with the surplus stacked in the corner.

The general public will soon regard us as 500 dollar scientists who are intent on a pleasure hunt that is free of entertainment tax.

We must all agree that the projected step is fundamentally sound and desirable. It is the side effects that are disastrous. To raise the level proportionately at the other end is not feasible.

I would propose that our experimental section be given more recognition. That they be bandied together in a quite distinct group (for experimental purposes only). This group should abandon the commercialised lower freq. to the pleasure hunters (including themselves).

It should be agreed that the (at least) 144 MHz. band and above it be recognised as the domain of the legitimate experimenter. A gentleman's agreement on these lines would probably be sufficient to keep the 500 dollar gate crashers out.

By this method we may hold our experimenters within the W.L.A. even though (and myself) they may be experimenting in the infra red to ultra violet part of the spectrum.

The commercialising of our organisation has separated the "sheep" from the "goats", both intellectually and financially. In a similar manner this proposed method will separate the newcomers. The "cream" of the intake will come to us on the higher frequencies.

If we are not there, then Amateur Radio will be inflicting an act of injustice on that group.

Until quite recently the experimental section had to submit to whatever treatment was meted out to them. The position has now changed. The science of misers and lasers have opened wide the infra red to ultra violet part of the spectrum. There is no valid reason, under existing conditions, why the average experimenter should even be on the Amateur bands. The experimenters are being pushed higher and higher. Automation in the form of modern transmitters have invaded even the 144 MHz. band. If we are to hold our experimenters within our ranks, then this band should be held for them.

In the interests of Amateur Radio the removal of injustices to prospective members should not cause further injustice to be inflicted on our own members. I favour lowering

that standard. I believe that there is room for all on our bands. This will not be so if we divide ourselves into the groups "the pushers" and "the pushed".

—A. J. C. Thompson, VK4AT.

Mr. J. Wright, of Clifton Hill, Vic., asks why there is so much objection to Novice licensing when for many years the Amateur bands had limited use. Despite the pleas "use the bands or lose them" parts were lost. If there had been such licensing years ago, it might have kept the bands going. He then asks that if we are not to have Novice licensing, what about updating the exam, paper similar to the New Zealand system of 50 questions with alternative answers for completion in three hours.

Of the two countries having the highest ratio of Amateurs to population, U.S.A. which has Novices and New Zealand which does not, seems to indicate the type of exam. is the reason in the latter case rather than a higher percentage of technically minded people there than in Australia. He is convinced the New Zealand exam. paper system is better than ours, particularly where the candidate is unversed in the P.M.G.'s present methods of examinations. His final two paragraphs read—

"In conclusion, I would like to say that it is a pity that the people who have their licences but spend a large portion of their time listening to 27.24 MHz. can't put this time to more use in helping some of the illegal operators on this frequency do the right thing, instead of simply rejecting them.

Perhaps this wasted time could be put to better use by 'intruder watching' the bands that count."

Mr. Ian Loughnan, of Penrith, N.S.W., writes that he is a member of the Y.R.C.S. and is very interested in the possibility of a Novice licence scheme in the hopes he can enter Amateur Radio through this channel. Being aware of opposition to Novice licensing he asks why it should not become as good here as in the U.S.A. He hopes to enter the radio and communications field, due course and believes that his Y.R.C.S. studies plus operating an N.L. station would be good groundwork especially as he has already found that Y.R.C.S. courses have helped him in his school subjects, especially science. He believes he can keep up his school work and still have time for radio as a hobby. He, therefore, supports N.L.

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INTRUDER WATCH

By Alf Chandler, VK3LCL, Federal Co-ordinator

At long last tangible interest in the Intruder Watch organisation is beginning to be evident. Reports are commencing to come through, but we still need more Observers, and if you wish to free your bands of intruders it is very desirable to report them when you hear them, and "that is all the time".

The following extract from the U.S. is interesting: "Notwithstanding the frequency agreements, non-Amateur stations will be heard in the exclusive Amateur bands from time to time. There is unfortunately an anomaly in the regulations which allows an Administration to assign any station any frequency provided that no interference is caused to a station of another country operating in accordance with the allocations tabled. In other words, if Amateurs fail to object to interference from non-Amateur stations in the Amateur bands, the Administration concerned is justified in feeling it is complying with the regulations. Enough reports often result in the removal of the intruder concerned." Thus you see how important it is for us to appoint as many Observers as possible.

Another quote from overseas may be of interest: "I happened to catch two tactical stations working each other, and arranged for someone to break into their net in order to see what would happen. This was done by carefully zero beating one of the stations and sending groups identical to theirs. The sequence of their operation leads me to the following tentative description of their communication procedure. First is the call-up procedure—WTLB de Y5SD HJ—the 'HJ' could mean QSA or simply K. Second, after the stations have established contact the term 'XII' plus a number indicating the number of messages. 'TV' is frequently used in situations which could mean either QRV or QRX. Most frequently it is used when a station appears to have received a part of a message okay.

"The manner of operation is full break-in, and should a station miss a group he will send a series of rapid 'R R R' until he breaks the transmitting station. All groups consist of four letters: 'NDLB NJKP PLUT' etc. When the receiving station succeeds in breaking the transmitting station he asks for fills as follows: '24W'—meaning repeat group 24; the transmitting station then repeats the group and makes a short pause. Should the receiving station wish him to repeat it again, a long dash will obtain the desired result. Should persistent interference be encountered the station signals the other by a slow 'S' repeated several times. Should the interfering station

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sound like one of their own, they will then send 'DO', which I interpret as a request to identify. A response using a home-made call similar to their's was made. This was answered in one case by a request to wait—'AS'—and when the calling station persisted in breaking their communication, they lapsed back into the 'S' business and began taking evasive action moving up and down without any apparent co-ordination, as though such evasive action is prescribed automatically as part of their procedure. When persisted in following them they went QRX, returning in three to five minutes."

I wonder if this procedure is ethical? It is very interesting though. What say?

OBITUARY

JIM NEIDECK, VK3AIC (ex W3MEW)

Known to many who are active on the h.f. bands, Jim has been an active member of both the W.I.A. and the Eastern and District Radio Club since arriving here in Australia to live over three years ago.

Jim was born in Pennsylvania and lived in the town of Bethlehem, Penns., where he was employed as a Chief Engineer of the Pennsylvania-Baltimore Railroad Co. Jim took part in many early developments of the teletype system used for communication within the railroad organisation. Later his daughter married and moved to Australia to live. Her name is Laurie VK3AGM. Jim later also moved to Australia and, together with Laurie, gave puppet shows to many thousands of children in the primary schools.

Jim is considered a great loss, not only to Amateur Radio, but also to all groups and associations to which he belonged. Jim leaves a wife, VI VK3BAK, and sister Mrs. Hanson, to whom we offer condolences.

CLIFFORD C. M. COUCHMAN, VK4KZ

Cliff was born near Toowoomba, Qld., in 1907 and passed away at Dalby, the Darling Downs, on 17th Sept., 1971, after a short illness.

The holder of a Commercial ticket, he first joined the Amateur bands in 1930 and served for five years in the Royal Australian Navy during World War II.

Cliff was on the staff of National Broadcasting Station QRS, Dalby, for 10 years, but left to devote full time to his electrical repair business and was widely known throughout the district as "Mr. Fix-it".

Although not active on the Amateur bands in recent years, he never lost interest in Amateur Radio. Cliff never married, and is survived by his sister, Miss Jean Couchman, to whom we offer our sincere sympathy.

W.I.A. NOVICE INVESTIGATION COMMITTEE

Since the original Novice Report was submitted to the Eastern Federal Convention in Brisbane the following proposals have been received from various sources and are submitted for consideration and opinion.

NOVICE LICENSING

Scheme No. 1—

That there should be a range of five grades of Amateur transmitting licences on the following basis:

(a) **Preliminary Licence**—No Morse code test; Regulations as for A.O.C.P.; No theory examination; a practical and oral test on equipment leading to the Third Class Commercial Licence (as issued to operators of fishing craft, pleasure craft, etc.); operation on v.h.f. only (probably areas in 144 and 432); voice operation only; equipment to be P.M.G. type-approved and commercially manufactured; limited power (say 5 or 10 watts).

Note: This form of licence would suit those who are "communicators" rather than "technicians". It would approximate to a hobby class C.B. but would avoid the rivalry that exists between Amateur Radio and C.B. in U.S.A. and would add a group to the W.I.A. who would not enter the Amateur society under A.O.C.P. or N.O.C.P. conditions. A group could be set up within the W.I.A. framework to organise the activities of this group. Perhaps a limited examination could be incorporated into the licensing conditions—perhaps not.

(b) **Technician Licence**—Morse code test at 5 w.p.m.; Regulations as for A.O.C.P.; Theory examination at sub-A.O.C.P. level with concentration on v.h.f. techniques. Operation on v.h.f. bands or segments to be determined, 10 watts input. C.w. and r.t.e. operation. Limited tenure period—say two years.

(c) **Novice Licence**—Morse code test at 5 w.p.m.; Regulations as for A.O.C.P.; Theory examination at sub-A.O.C.P. level with concentration on c.w. techniques. Operation on h.f. band segments to be determined, 10 watts input, crystal control, e.w. only. No time limit on tenure.

(d) and (e) A.O.L.C.P. and A.O.C.P. as at present.

Scheme No. 2—

That there should be a range of three grades of Amateur transmitting licences on the following basis:

(a) **Amateur Operator's Restricted Certificate of Proficiency**—Morse code test at 5 w.p.m.; Regulations as for A.O.C.P.; Theory examination at sub-A.O.C.P. level in Part A (Telegraphy transmission) section of A.O.C.P. examination with 10 watts, crystal control, e.w. only, band segments. Two years tenure.

(b) and (c) A.O.L.C.P. and A.O.C.P. as at present.

Scheme No. 3—

That there should be a range of four grades of Amateur transmitting licences on the following basis:

(a) **Amateur Operator's Certificate in Basic (or Preliminary or Restricted) Telegraphy**—Morse code test at 5 w.p.m.; Regulations as for A.O.C.P.; Theory examination based on Part A (Telegraphy transmission) section of A.O.C.P. examination; marks for pass 50 to 60 per cent; operation with 10 watts input, e.w. only, segments of A.O.C.P. Amateur bands—perhaps 80 and 40, or 80 and 15. Limited tenure for period to be determined.

(b) **Amateur Operator's Certificate in Telegraphy**—Morse code test 10 w.p.m.; Regulations as for A.O.C.P.; Theory examination—70 per cent of marks (or more) in Part A of A.O.C.P. Theory examination. Operation with 100 watts, crystal, v.x.e., v.f.o. to control frequency, e.w. only, use of c.w. segments of all h.f. bands. No time limit on tenure.

(c) and (d) A.O.L.C.P. and A.O.C.P. as at present.

Note that reference is made to Part A of A.O.C.P. examination. A sample exam, paper to meet this format has been made out and is at present under discussion by Eastern Zone (Victoria) Novice Investigation Committee. This will be distributed as soon as it is returned from E.Z. with commentary.

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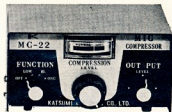
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DIVISIONAL NOTES

DIVISIONAL CALENDAR

Listed also to Divisional Broadcasts

- 5 Nov. VK2-V.h.f. meeting; Hunter Branch meeting; Gosford meeting.
 7 Nov. VK3-V.h.f. Field Day, 1100-1600 EST.
 19 Nov. VK2-Gosford meeting.
 21 Nov. VK2-Midland Zone's H.F. and V.h.f. Rally at Lake Espinal.
 VK3-V.h.f. Group Picnic, Morialta.
 24 Nov. VK2-V.h.f. Fox Hunt.
 26 Nov. VK2-General meeting.
 27 Nov. VK2-Zone Luncheon, Evandale Memorial Hall from 1200 hours.
 28 Nov. VK2-V.h.f. meeting (auction night); Hunter Branch meeting; Gosford meeting.
 5 Dec. VK2-V.h.f. Field Day, 1100-1600 EST.
 VK3-V.h.f. Field Day, 0630-1630 and 1230-1330 EST.
 11 Dec. VK2-V.h.f. Christmas Party; V.h.f. Fox Hunt.
 12 Dec. VK3-V.h.f. & Mt. Dist. Club Xmas Outing all day, families, Yarra Glen.
 17 Dec. VK2-General meeting (note third Fri.); Gosford meeting.

NEW SOUTH WALES

SEPTEMBER GENERAL MEETING

The Sept. general meeting held on Friday, 14th, heard a most interesting lecture given by Mr. C. Allan, VK2BLC, the N.S.W. Civil Defence Communications Officer. Charlie's subject was of course the Civil Defence Organisation. A vote of thanks was moved by P. Hesly and carried in the usual manner.

Remember, the December general meeting is on Friday, 17th, which is the third Friday of the month.

CONCESSIONAL MEMBERSHIP

That concessional membership be granted to pensioners and full-time students, provided they make application for consideration by an appointed committee which will consider each application on its merits. The rate will be 50 per cent. of the fees which normally prevail with no loss of status.

That the previous motion be retrospective to 1st March, 1971, provided application is made before 30th November.

SEPT. 2 METRE FOX HUNT

The fox was VK2ROA and the final location was at Mt. Doreen, NSW (in after 25 minutes); 2nd, VK2ZGX; 3rd, VK2ZTD. Six cars at start at North Ryde. All hounds enjoyed a delicious supper prepared exquisitely by Mrs. Lark. Evening finished at approx. 10.15 p.m. (Carl VK2ZGX, Contest Manager.)

NEPEAN DISTRICT AMATEUR RADIO CLUB FIELD DAY, 20th SEPT., 1971

About 100 persons in all enjoyed the N.D.A.R.C. annual field day in ideal weather conditions. Some difficulty was experienced by the 7 MHz. bands in the morning, but a re-

run saw Dave VK2IAWZ 1st—but still no second place getter. The special event—the smallest tunable home-brew receiver—posed a problem for the independent judges (Tim VK2ZTM and Tony VK2ACY), with the multimeter prize going to local club member Leo Michalik. Carl VK2ZGX did very well with three firsts and two second prizes. Congratulations to Carl and all other prize winners. Dave VK2ZZN did not do too badly either.

An antique display was given by courtesy of Harold VK2AJS with very old working units of many varieties. Harold's technical quiz of "Jacobs Ladder" got many in for a prize of a pair of stereo phones.

What happened to the cryptic clue starters? They couldn't find the fox, nor their way back—some arrived back after prize giving at 4.20 p.m. The club hopes that everyone had a good time and hope to see you all again next year with your friends. Thanks also to our many donor firms and the N.S.W. W.I.A. Executive for generous support. (Publicity Officer, N.D.A.R.C.)

MEMBERSHIP APPLICATIONS PRESENTED GENERAL MEETING, 24/9/71

- Mr. R. Atkinson, 29 Macdonnell St., Yarralumla, A.C.T. 2606. Assoc.
 Mr. H. B. Gail, 200 Gail Fisheries (N.G.), P.O. Box 920, Port Moresby, P. VK5HB, Full.
 Mr. G. Hunkley, 8 Chambers St., East Maitland, N.S.W. 2232. VK2ZDR, Full.
 Mr. D. Ford, School Residence, Austinmer, N.S.W. 2514. Assoc.
 Mr. R. N. Treason, 22 Trebor Rd., Pennant Hills, N.S.W., 2120. Assoc.
 Taree OK Youth Radio Club, C/o G. Hunziker (CZBGP), 24 Chubb Ave., Taree, N.S.W. 2430. VK2BRC, Full.

VICTORIA

MODIFICATION TO MEMORANDUM AND ARTICLES OF ASSOCIATION

Council has given consideration to proposals aimed at widening members' representation on Council. These proposals have been forwarded to the Division's legal advisers and it is hoped that they may be implemented soon.

MORSE CLASS

A Saturday morning Morse Class has commenced, preparing students for the February 1972 examination. The scale of fees has been designed to give the benefit of worthwhile reductions to both full and associate members. The class is open to all and the fees are:

Full members	\$10.00
Associate members	\$15.00
Non-members	\$25.00

For further details contact the Divisional office on 41-3533.

E.D.P. SYSTEM

The Division's records are being put on an E.D.P. system and your next renewal notice will be made out in this way. It is hoped to effect significant economies by the use of the E.D.P. system for membership records.

LILYDALE CENTENARY CELEBRATIONS

The Eastern and Mountain District Radio Club will be participating in the Lilydale Shire Centenary Celebrations during the week of the 12th to 18th February, 1972. The club intends to set up displays and to operate the club station VK2ER on all bands during the celebrations. This activity is being used as a drive for favourable publicity for Amateur Radio.

A multi-colour commemorative QSL card has been struck for the occasion. Contacts with VK3ER will also count as 2 points towards the club's Southern Cross Award (details last issue). (VKA5AU)

SOUTH AUSTRALIA

The Sept. Divisional meeting was well attended to hear and see a lecture by Rex Vinycumb describing the undernominational mission radio station EL2W in Liberia Africa. Members observed with respect to the memory of Joe Kilgariff, VK5JT, an old timer quite active until recently with the assistance of Max VK5GZ. Copies of information about Novice licensing were distributed for sub-committee discussions which should report at the Nov. meeting. Marshal VK5QO's motion to discuss with the swap and shop was carried, details further on. The 23rd Nov. Divisional meeting will hear a lecture from Al VK5MP on slow scan t.v., a field of experimenting gaining popularity on h.f.

The Nov. V.h.f. Group meeting on Friday, 5th, will be a visit to a live t.v. production. For the V.h.f. Group Picnic (see Div. Calendar) good activities have been planned to keep the odd moments filled for all.

ACTIVITIES

The section leaders in the August VK5 intra-state contest on h.f. and v.h.f. were:

- Full licensees, metropolitan—VK5BW.
 Full licensees, country—VK5DK.
 Limited licensees, metropolitan—VK5ZLZ.
 Limited licensees, country—VK5ZTH.
 C.w. entries—VK5ZXX.
 Multi-operator station—VK5LPL/5.

Receiving sections were: C.w. entries—VK5ZXX. All details are in the October Journal. Marshal VK5QO has brought an idea from his native Detroit that could prove very popular. His swap and shop proposal is an advance on the standard jumble sale auctions which have been flooded with low grade equipment. This idea which has gained huge popularity in the U.S. is for a Sunday afternoon gathering where members can bring good equipment now gathering dust, and by renting suitable space, do their own barter, swap, face to face. The only financial advantage to the Division is a door entry charge proposed at 20 cents per person, plus a space rental fee, again proposed is 20 cents.

Marshall's committee of Phil VK5NN, Arn VK5VJ and Jim VK5NB have organised the first swap and shops for Sunday, 14th Nov., from 12 noon till 5 p.m. at Symonds Place, Adelaide, behind the Repco building, King William St., which has plenty of parking space.

This will be a most enjoyable afternoon, just meeting old friends, but to make it the huge snowball it can be, everybody must bring something to sell, so don't leave it to the next chap, that half completed transmitter will be useful to someone. (Bart VK5GZ)

WESTERN AUSTRALIA

390 questionnaires were sent out in February to all members of the Division and 223 were returned, of which 198 were completed. The nature of the replies were more informative, 25 per cent. had been members for less than two years and 36 per cent. had been members over 10 years. Most people did not use the QSL Bureau at all, and of those who did use the Bureau 50 per cent. get their cards at Divisional meetings. Nearly everyone believed the Division should have cashed the bank, the majority favouring a kitty of \$300 to \$1,000. The majority thought that the full member subscription should be \$7 per annum, though there was a substantial number who thought the subscription should be \$10 or between \$8 and \$10.

In the listings of how the Division could improve its appeal, the majority thought there should be club premises with facilities, gear, lectures and streaming business with finances on time. Some wanted more social functions and more publicity. Way down the list were specific ideas such as news services on the broadcasts, less sniping at Council, encouraging Y.R.C.S., greater membership and so on.

Full details of the results of the questionnaire were listed in the W.A. Bulletin for July and are interesting study material.

VICTORIAN DIVISION W.I.A.

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Further details from the W.I.A. Broadcasts or Zone Secretary, Bill Clark, VK3FY, High St., Kangaroo Flat, 3555.

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FEDERAL AWARDS

COOK BI-CENTENARY AWARD

The following additional stations have qualified for the Award:

Cert. No.	Call No.	Cert. No.	Call No.
1395	AX3HE	1402	YUAEHL
1396	ZLJSSZ	1403	ZLJABC
1397	LU4ECO	1404	DLIES
1398	AX7FB	1405	AXAZJ
1399	WDDZ	1406	ZLJASZ
1400	JA1VVK	1407	UA0ZS

D.X.C.C.

The following additions have been made to the Australian D.X.C.C. Countries list:

3C0—Annohon
—Abu Ali, Jabal at Tair
—Melish Reef

Although operation has not as yet taken place from Melish Reef, credit will be given to any future operation from there.

— . . . —

VKs HEARD ON 160 METRES

The following table is an analysis of VK calls heard on 160 metres in Western Australia during 1970, showing monthly figures, the result of 289 daily checks. All calls were counted once only on any one date. The aggregate total shows an increase over 1969 of 81 per cent.

Month	VK1	VK2	VK3	VK4	VK5	VK6	VK7	VK9
Jan.	0	0	11	0	3	6	0	0
Feb.	0	0	0	0	0	0	0	0
Mar.	0	0	5	0	0	0	0	0
Apr.	0	0	7	0	2	0	0	0
May	0	0	13	1	10	0	3	0
Jun.	0	0	3	0	0	0	0	0
Jul.	0	0	9	11	23	0	0	0
Aug.	0	4	20	0	11	25	0	0
Sep.	7	7	40	0	12	18	0	1
Oct.	7	7	30	0	8	29	0	0
Nov.	0	0	0	0	8	20	0	0
Dec.	0	0	3	0	3	30	0	0

Totals 14 22 144 1 73 162 3 1

—George Allen, L5042.

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VK2AGH—G. Hall
VK1AKJ—J. Neldeck
VK3ZQR—G. Thomson
VK4KZ—C. C. M. Couchman

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FOR SALE: As new Trio TS510 Transceiver plus matching 240v. AC mains power supply and matching remote VFO 52. All facilities provided and 160w. p.e.p. Suitable for VHF Transverter operation also. This is the latest Transceiver from Trio. Mic and desk stand, connecting leads, plugs, handbooks, alignment tool, spare relay and spare set of valves included. Priced for quick sale, \$425. Phone or telegram Melbourne (03) 20-4329, VK3AZA.

FOR SALE: Collins KWM2 with attached PM1 Power Supply incl. Speaker, Collins MM1 Mike, suitcase job, \$650, coat \$190. Webster Bandspanner, \$30. Johnson Matchbox with SWR meter, etc. \$50. Mosley Tribander TR33 Jr. with motor and remote control, \$90. BC221 with book and service manuals. AC powered, \$35. Take \$330 the lot. Kinross, Flat 17, 417 Toorak Rd., Vic., 3142, or phone 24-8513.

FOR SALE: FT-DX-100 with matching Speaker, circuit and instruction book. Unit is just over two years old and is as new condition, \$330. Kyoritsu SWR meter, \$15. Astatic Microphone with desk stand \$35 (new price \$60). This is the ideal microphone for SSB. For the lot will accept \$380. I. Browne, VK4DB, 32 Dulgann St., Cairns, Qld., 4870.

FOR SALE: Complete Sideband Station: 300 watt PEP Phasing Transmitter, heavy duty Power Supplies, modified Airtel crystal Controlled Converter, 40-20.15, the lot for \$130, VK4NB, 95 Gatton St., Mt. Gravatt, Qld., 4122. Phone 49-4615.

FOR SALE: Linear Amplifier, 80 through 10 metres, GG parallel 4-400As, capable of 1 KW PEP and matching PS. Fully metered and safety protected. Forced air cooled. \$170 p.n.o. Contact R. Wyllie, VK3BSL, Phone 311-1111 Ext. 454 or A.H. 12 Balmoral St., Laverton, Vic.

FOR SALE: MR20A 2 FM Transceiver, 6146 final, PEP pre-amp, 2-channel relay switching, A.W.A. Carphone power unit. Mobile power supply and controlling gear. The lot, \$50. Tim Robinson, VK3YBV, 52 Warrandyte Rd., Ringwood, Vic., 3134. Phone (03) 870-5302.

FOR SALE: National NC300 Receiver, 180 to 10 metres, plus VHF Converter bands, Xtal Filter and Calibrator, switched selectivity etc. Excellent physical and working condition. Price \$195 or best offer. VK2GR, 18 Queens Rd., Asquith, N.S.W., 2078. Phone 47-4344 (Syd.).

FOR SALE: Splendid Grundig Satellite 601 Portable Receiver, complete, SSB/CW, also normal AM and FM, torch cells or mains powered, as new, \$240. Stereo 800F, small portable c/w, excellent working condition, AC 50 Hz., to 1 KW., plus 12 volt DC output, \$180. VK3000A Transceiver, complete (includes 120 watt power supply, 120 watt power supply, mobile PSU \$85, VK3CIF, C/o. Federal Executive.

FOR SALE: Swan 350 5-band Transceiver, complete with AC Power Supply, Speaker, Microphone, plus dual D.C. Mobile Supply, deceased estate, best offer to G. Sabin, 27 Fishbourne Rd., North Manly N.S.W., 2100.

FOR SALE: Transistor Tube Vidicon Deflection Yokes, \$10. Vidicons, one inch, 2nds, \$12. 5UP1 (F) Cat. \$8. 21020 Nixie Digital Counter Tubes, \$1.50. 2305S Counter Tubes, \$1. Contact VK2ZPM, Phone 476-2304 (Syd.).

FOR SALE: Trio JRM60 Receiver, excl. condition, \$140 p.n.o. SC3522 Transmitter, working on 2 m. AM, 4 channels plus 240 v. power supply, \$50. MTR10C Low Band Transmitter only, \$5. VK2ZHR, 131 Tudor St., Hamilton, Newcastle, N.S.W., 2303. Phone 69-1498.

FOR SALE: 200W PEP Multi-band SSB Transceiver, mechanically complete, part wired, \$55. New 9 MHz. Xtal Filter and Carrier Xtals, \$24. AC PSU to suit above and Glaxia Transceiver, \$15, or \$65 the lot. 48 Orchard St., Glen Waverley, Vic. Phone 232-9492.

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WANTED: Murphy British Naval VLF Receiver or similar type tuning down to 10 KHz. or lower. R. F. Fisher, VK3BD, 241 Royal Ave., Parkville, Vic., 3052. Phone (business hours) 340-5931.

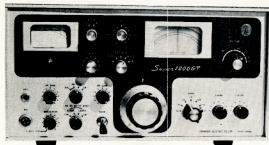
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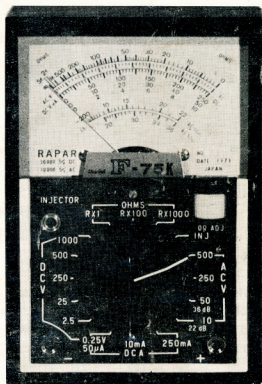
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